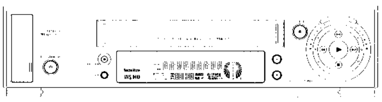
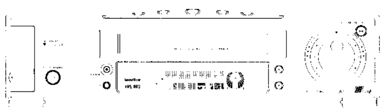
Video Cassette Recorder **Deck: Turbo Drive** **Paolina Hifi**

Service
Service
Service

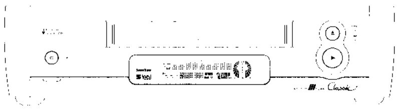
VR666/02/16/39
VR668/02/05/06/16/39
VR768/02/05/16/39/59
VR967/02/16/39/58
VR969/02/05/16/39/58



VR668



VR768



VR967

VR969

Service Manual

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Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

Survey of types:

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VR967: S-VHS, Jog/Shuttle,
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Survey of versions:

/02	PAL B/G German Stereo
/05	PAL I, NICAM
/16	PAL B/G, NICAM & German Stereo
/39	PAL B/G & SECAM L, NICAM
/58	PAL B/G & SECAM DK
/59	PAL B/G & SECAM DK

Survey of remote controls:

VR666	englisch:	RT167/101	4822 218 10757
	french (/39):	RT167/104	4822 218 10758
VR668, VR768, VR967, VR969	english:	RT567/101	4822 219 10084
	french (/39):	RT567/104	4822 219 10085

Survey of tape decks:

VR66x PAL:	WDMT-P4/2	4 Video+ 2 FM-Audio Heads
VR66x SECAM:	WDMT-S4/2	4 Video+ 2 FM-Audio Heads
VR768 PAL:	WDMT-P4/2/1 S	4 Video+ 2 FM-Audio Heads, Jog/Shuttle, Fl. Erase Head
VR768 SECAM:	WDMT-S4/2/1 S	4 Video+ 2 FM-Audio Heads, Jog/Shuttle, Fl. Erase Head
VR967:	WDMT-P4/2 SV	S-VHS, 4 Video+ 2 FM-Audio Heads, Jog/Shuttle
VR969:	WDMT-P4/2/1 SV	S-VHS, 4 Video+ 2 FM-Audio Heads, Jog/Shuttle, Flying Erase Head

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PCS 76610 GB

Features

		VR666/02	VR666/16	VR666/39	VR668/02	VR668/05	VR668/06	VR668/16	VR668/39	VR768/02	VR768/05	VR768/16	VR768/39	VR768/59	VR967/02	VR967/16	VR967/39	VR967/58	VR969/02	VR969/05	VR969/16	VR969/39	VR969/58
Special features	Direct Record analog (WYSIWYR)	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Follow TV analog	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Back-up time h	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	VCR1/VCR2 selection	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	16:9 (via Scart pin 8)	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Edit Insert				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Rapid Timecode																		✔	✔	✔	✔	✔
	Time and Date download	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Synchro Time	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Subtitle recording in correct colours				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	EASY LINK (Project 50)	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Teletext				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	On Screen Display (without TXT)	✔	✔	✔																			
	Jog/Shuttle									✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Comb filter																		✔	✔	✔	✔	✔
Edit	Synchro Edit				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	RS 232 interface																		✔	✔	✔	✔	✔
	MEI Edit																		✔	✔	✔	✔	✔
	LANC Edit									✔	✔	✔	✔	✔					✔	✔	✔	✔	✔
Programming	Transm. identif. via VPS/PDC	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Record prep. mode Scart 1&2	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	FOLLOW TV (analog)	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	PDC	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	VPS	✔	✔	✔	✔		✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔
	Gemstar Video+					✔					✔									✔			
	Gemstar Showview	✔	✔	✔	✔		✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔
Video	SVHS														✔	✔	✔	✔	✔	✔	✔	✔	✔
	S-VHS Playback (SQPB)				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔									
	NTSC Playback			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Studio Picture Control	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Sound	Sound system: Nicam			✔		✔	✔	✔	✔		✔	✔	✔			✔	✔			✔	✔	✔	
	Sound system: German stereo	✔	✔	✔	✔		✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔
Mechanism	Audio only recording	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Audio Dubbing				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Audio Longplay [8h]	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Tape counter linear	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Quick view	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Winding Time E180 90s	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	Flying Erase Head									✔	✔	✔	✔	✔					✔	✔	✔	✔	✔
	Videoheads	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Tuning	Autoinstall					✔					✔									✔			
	ATS-EURO+	✔			✔					✔					✔				✔				
	Autostore with Preset Allocation		✔	✔		✔	✔	✔	✔		✔	✔	✔	✔		✔	✔	✔		✔	✔	✔	✔
TV system	PAL BG DK, SECAM BG DK													✔				✔					✔
	PAL BG, SECAM L-L´,SECAM BG			✔			✔		✔				✔				✔					✔	
	PAL I / IRELAND			✔		✔	✔		✔		✔		✔				✔			✔		✔	
	PAL BG	✔	✔		✔			✔		✔		✔			✔	✔			✔		✔		

PCBs & Tape Decks

	POWER SUPPLY		***FRONT END BOARD PAL BG/I***	***FRONT END BOARD PAL/SECAM L***	***MOTHER BOARD*** -TM Tuner/Modulator -SE SECAM -HC Head Amplifier -VS Video Signal Processing -DE Deck Electronics -OS On Screen Display (not for TXT) -CC Central Control -VP VPS / PDC	Deck microprocessor 7085				***IN/OUT BOARD*** -IO Input/Output -AU Audio (FM + Linear Audio)	***TELETEXT BOARD***			***S-VHS BOARD*** -CF Comb Filter -SH S-VHS Luminance Processing	***TRANSCODER BOARD*** -SF S-VHS Chrominance Processing -SP SECAM/PAL Transcoder	***DISPLAY CONTROL***						***TAPE DECK***					
page 3-	27		29	31	34 35 36 37 38 39 40 41					44 45	46			50 51	53 54	55	57	59	61	63	65	chapter 4					
	PSM2B	PSM3				TMP91C642AF O.SW	TMP91C642AF SW	TMP91C642AF SW-L	TMP91C642AF SW-RS		PVT1	PVT2	PVT6			PKP31	PDCPN4	PDCPN3	PDCPN2	PDCPN1	PCUPN1	WDMT-P4/2	WDMT-S4/2	WDMT-P4/2/1 S	WDMT-S4/2/1 S	WDMT-P4/2 SV	WDMT-P4/2/1 SV
VR666/02	●		●		●	●				●						●	●					●					
VR666/16	●		●		●	●				●						●	●					●					
VR666/39	●			●	●	●				●						●	●						●				
VR668/02	●		●		●	●				●	●					●	●					●					
VR668/05	●		●		●	●				●	●					●	●					●					
VR668/06	●			●	●	●				●		●				●	●						●				
VR668/16	●		●		●	●				●	●					●	●					●					
VR668/39	●			●	●	●				●		●				●	●						●				
VR768/02	●		●		●			●		●	●								●					●			
VR768/05	●		●		●			●		●	●								●					●			
VR768/16	●		●		●			●		●	●								●					●			
VR768/39	●			●	●			●		●		●							●						●		
VR768/59	●		●		●			●		●		●							●					●			
VR967/02		●	●		●		●			●	●			●	●			●								●	
VR967/16		●	●		●		●			●	●			●	●			●								●	
VR967/39		●		●	●		●			●	●			●	●			●								●	
VR967/58		●	●		●		●			●	●			●	●			●								●	
VR969/02		●	●		●				●	●			●	●	●					●	●						●
VR969/05		●	●		●				●	●			●	●	●					●	●						●
VR969/16		●	●		●				●	●			●	●	●					●	●						●
VR969/39		●		●	●				●	●			●	●	●					●	●						●
VR969/58		●	●		●				●	●			●	●	●					●	●						●

GB	D	F	
Technical Data	**Technische Daten**	**Caractéristiques**	
Mains voltage	Netzspannung	Tension secteur	220 – 240 V
Mains frequency	Netzfrequenz	Fréquence	47 – 63 Hz
Power consumption:	Leistungsaufnahme:	Puissance absorbée:	18 W during operation 15 W standby
with Low Power Standby	Standby mit geringem Verbrauch	avec la fonction veille faible consommation	< 1 W
Ambient temperature	Raumtemperatur	Température ambiante	+10°C to +35°C
Relative humidity	Relative Luftfeuchtigkeit	Humidité relative	20 – 80 %
Weight	Gewicht	Poids	5.4 kg
Fast forward/rewind time	Vor-/Rückspulzeit	Temps (re-)bobinage	typ. 95s (E180 cass.)
Position of use	Betriebslage	Position d'emploi	horizontally, max. 15°
Video resolution	Video-Auflösung	Résolution vidéo	≥ 240 lines VHS ≥ 400 lines S-VHS
Audio	Audio	Audio SP:	80Hz – 10kHz (±5dB)
		Audio LP:	80Hz – 5kHz (±5dB)
		FM Audio:	20Hz – 20kHz (±3dB)

NL	E	I	
Technische Gegevens	**Datos Tecnicos**	**Dati Tecnici**	
Netspanning	Tensión de red	Tensione di alimentazione	220 – 240 V
Netfrequentie	Frecuencia de red	Frequenza di rete	47 – 63 Hz
Opgenomen vermogen:	Consumo de potencia:	Potenza assorbita:	18 W during operation 15 W standby
met Low Power Standby	con standby de bajo consumo	in attesa a basso consumo	< 1 W
Omgevingstemperatuur	Temperatura ambiente	Temperatura ambiente	+10°C to +35°C
Relatieve vochtigheid	Humedad relativa	Umiditá relativa	20 – 80 %
Gewicht	Peso	Peso	5.4 kg
Vooruit/terugspoeltijd	tiempo de (re-)bobinado	Tempo di (ri-)avvolgimento	typ. 95s (E180 cass.)
Gebruikspositie	Posición de uso	Posizione di funzionamento	horizontally, max. 15°
Opplossend vermogen	Resolución video	Risoluzione video	≥ 240 lines VHS ≥ 400 lines S-VHS
Audio	Audio	Audio SP:	80Hz – 10kHz (±5dB)
		Audio LP:	80Hz – 5kHz (±5dB)
		FM Audio:	20Hz – 20kHz (±3dB)

Safety instructions

- Safety regulations demand that the set be restored to its original condition and that components identical with the original types be used.

  Safety components are marked by the symbol ⚠
- All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair may reduce life drastically. When repairing, make sure that you are conneted with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools on the same potential.
- A set to be repaired should always be connected to the mains via a suitable isolating transformer.
- Never replace any modules or any other parts while the set is switched on.
- Use plastic instead of metal alignment tools. This in order to prelude short-circuit or to prevent a specific circuit from being rendered unstable.

Remarks

- The direct voltages and oscillograms ought to be measured relative to the set mass.
  EXCEPTION
  At the power supply, the DC voltages and the oscillograms at the primary side are measured to LIVE GND.
- The direct voltages and oscillograms mentioned in the diagrams ought to be measured with a colour bar signal and the picture carrier at 503.25 MHz (C25).
- The oscillograms and direct voltages have been measured in RECORD or PLAY mode.
- The semiconductors, which are mentioned in the circuit diagram and in the parts lists, are fully exchangeable per position with the semiconductors in the set, irrespective of the type designation of these semiconductors.

Sicherheitshinweise

- Die Sicherheitsvorschriften erfordern es, daß sich das Gerät nach der Reparatur in seinem originalen Zustand befindet und daß die zur Reparatur benutzten Ersatzteile mit den Originalersatzteilen identisch sind.

  Sicherheits-Bauteile sind mit der Markierung ⚠ versehen
- Alle IC's und Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD). Unvorschriftmässige Behandlung von Halbleitern im Reparaturfall kann zur Zerstörung dieser Bauteile oder zu einer drastischen Reduzierung der Lebensdauer führen. Sorgen Sie dafür, daß Sie sich im Reparaturfall über ein Armband mit Widerstand auf dem gleichen Potential, wie die Masse des Gerätes befinden. Alle Bauteile, Werkzeuge und Hilfsmittel sind auf das gleiche Potential zu legen.
- Ein zu reparierendes Gerät ist immer über einen Trenntransformator an die Netzspannung anzuschließen.
- Bei eingeschaltetem Gerät dürfen keine Module oder sonstige Einzelteile ausgetauscht werden.
- Zum Abgleich sind ausschließlich Kunststoffwerkzeuge zu benutzen (keine Metallwerkzeuge verwenden). Dadurch wird vermieden, daß ein Kurzschluß entstehen kann oder eine Schaltung instabil wird.

Anmerkungen

- Die Gleichspannung und Oszillogramme sind gegen Gerätemasse zu messen.
  AUSNAHME
  Beim Netzteil sind die Gleichspannungen und Oszillogramme auf der Primärseite gegen Live GND gemessen.
- Die Gleichspannungen und Oszillogramme angeführt in den Schaltbildern sollen unter folgenden Bedingungen gemessen werden: Farbbalkensignal, Bildträger auf 503.25 MHz (C25)
- Die Oszillogramme und Gleichspannungen sind in RECORD oder PLAY gemessen. Die in den Stücklisten aufgeführten Bauteile sind positionsweise voll auswechselbar gegen die Bauteile in dem Gerät, ungeachtet der etwaigen Typenbezeichungen.

Avertissements

- Les normes de sécurité exigent qu'aprés réparation l'appareil soit remis dans son état d'origine et que soient utilisées les piéces de rechange identiques à celles spécifiées.

  Les composants de sécurité sont marqués ⚠
- Tout les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharger statiques (ESD). Leur longévité pourrait étre considérablement écourté par le fait qu'aucune précaution n'est prise à leur manipulation. Lors de réparations s'assurer de bien étre relié au méme potential que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité. Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.
- Toujours alimenter un appareil à réparer à travers un transfo d'isolement.
- Ne jamais remplacer les modules ni d'autres composants quand l'appareil est sous tension.
- Pour l'ajustage, utiliser des outils en plastique au lieu d'instruments métalliques. Ceci afin d'éviter les court-circuits et exclure l'instabilité dans certains circuits.

Observations

- La mésure des tensions continues et des oscillogrammes doit se faire par rapport à la terre de l'appareil.
  EXCEPTION
  Sur l'unité d'alimentation la tension continue et l'oscillogramme sont mesurés sur le côte primaire en Live GND.
- La mésure des tensions continues et des oscillogrammes figurant sur le schéma doit se faire dans un signal de barre couleur porteuse image sur 503.25 MHz (C25).
- Les oscillogrammes et tension sont mésurées en mode RECORD ou PLAY.
- Les semi-conducteurs indiqués dans le schéma de principe et à la liste des compostants, sont interchangeables par repère sur ce chassis avec les semi-conducteurs de l'appareil quelle que soit la désignation de type donnée sur ces semi-conducteurs.

Veiligheidsinstructies

- Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, indentiek aan de oorspronkelijke, worden toegepast.
  De veiligheidsonderdelen zijn aangeduid met het symbool

  ⚠
- Alle IC's en vele andere halfgeleiders zijn gevoelig voor elektrostatische ontladingen (ESD). Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor, dat U tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat. Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.
- Sluit een apparaat dat gerepareerd wordt altijd via een scheidingstransformator aan op de netspanning.
- Verwissel nooit modules of andere onderdelen terwijl het apparaat is ingeschakeld.
- Gebruik voor het afregelen plastic i.p.v metalen gereedschap. Dit om mogelijke kortsluiting te voorkomen of een bepaalde schakeling instabiel te maken.

Opmerkingen

- De gelijksspanningen en oscillogrammen dienen gemeten te worden ten opzichte van de apparaat aarde.
- De gelijksspanningen en oscillogrammen vermeld in de schema's dienen gemeten te worden met een kleurbalkensignaal beelddraaggolf op 503.25 MHz (C25).
- De oscillogrammen en gelijksspanningen zijn in RECORD of PLAY mode gemeten.
- De halfgeleiders, die in het pricipeschema en in de stuklijsten, zijn vermeld, zijn per positie volledig uitwisselbaar met de halfgeleiders in het apparaat, ongeacht de typeaanduiding op deze halfgeleiders.

Avvertimenti

- Le prescrizioni di sicurezza richiedono che l'apparecchio sia ricondotto alle condizioni originali e che siano usati ricambi originali.

  Componenti di sicurezza sono marcati con ⚠
- Tutti gli IC e semiconduttori sono sensibili a scariche elettrostatiche (ESD). Noncuranze durante la riparazione di semiconduttori possono danneggiarli o condurre ad una riduzione drastica della durata. Durante la riparazione assicurarsi di essere collegati allo stesso potenziale attraverso un bracciale di protezione contro scariche elettrostatiche. Inoltre tenere anche tutti i componenti e gli attrezzi a questo potenziale.
- Apparecchi da riparare bisogna collegarli sempre via un trasformatore isolante (separatore) alla tensione normale.
- Non scambiare moduli o altri componenti quando l'apparecchio è in funzione.
- Per l'accordo usare soltanto attrezzi di plastica (non usare attrezzi metallici). Cosí si evitano cortocircuiti e collegamenti instabili.

Osservazioni

- Misurare le tensioni continue e gli oscillogrammi riferiendosi alla massa dell'apparecchio.
  ECCEZIONE
  Le tensioni continue e gli oscillogrammi dall'alimentatore sono misurati sulla parte primaria contro GND-Live.
- Le tensioni continue e gli oscillogrammi indicati negli schemi di collegamento devono essere misurati secondo le condizioni seguenti: segnale barre colore, portante dell'immagine su: 503.25 MHz (C25).
- Gli oscillogrammi e le tensioni continue sono misurati in RECORD o PLAYBACK.
- I componenti indicati nelle liste sono intercambiabili con quelli nell'apparecchio nonostante l'eventuale denominazione di modelli.

Avisos

- Las instrucciones de seguridad exigen que después de la reparación el aparato se encuentre en el estado original y que las piezas de repuesto, utilizadas para la reparación, sean idénticas a las originales.

  Los componentes de seguridad estan marcados con ⚠
- Todos los IC y semiconductores son sensibles a descargas electrostáticas (ESD). Un tratamiento no conforme a las instrucciones de semiconductores en caso de reparación, podría llevar a la destrucción de estos componentes, o a una reducción drástica de la duración. Tenga cuidado de que, en caso de reparación, estar al mismo potencial que la masa del aparato, por una pulsera con resistencia. Ponga todos los componentes, herramientas y recursos al mismo potencial.
- Para reparar un aparato hay que conectarlo siempre a la alimentación a traves de un transformador de aislamiento.
- Cuando un aparato está en marcha no pueden ser cambiados módulos u otras piezas de repuesto.
- Para los ajustes hay que utilizar exclusivamente herramientas de plástico (nunca herramientas metálicas). Así se evitaran cortocircuitos y circuitos inestables.

Notas

- Hay que medir las tensiones continuas y los oscilogramas contra la masa del aparato.
- Las tensiones continuas y los oscilogramas mencionados en los esquemas tienen que ser medidos de manera siguiente: señal barra de color portadora de imagen en 503.25MHz (C25)
- Los oscilogramas y las tensiones continuas son medidas en „RECORD" y „PLAYBACK"
- Los componentes mencionados en las listas se los puede cambiar por los componentes en el aparato, a pesar de eventuales designaciones de tipos.

(GB) WARNING FOR LITHIUM BATTERIES!

Lithium batteries, if incorrectly used (excessive heat, wrong connection of terminals, short circuit represent a danger of explosion!
Lithium batteries must be replaced only by original spare parts.

(D) WARNHINWEIS ZU LITHIUM-BATTERIEN!

Bei fascher Handhabung (Überhitzung, Falschpolung oder Kurzschluß) der Lithium-Batterien besteht Explosionsgefahr!
Lithium-Batterien dürfen nur gegen Originalersatzteile getauscht werden.

(F) ATTENTION!

Pile au lithium.
Danger d'explosion si traitée incorrectement. Ne peut être remplacée que par un spécialiste (comme décrit dans les instructions de réparation).

(NL) OPGELET MET LITHIUM-BATTERIJEN!

Bij foutieve behandeling (oververhitting, foutieve poling of kortsluiting) van lithium-batterijen bestaat er explosiegevaar! Lithium-batterijen mogen slechts door originele onderelen vervangen worden.

(I) ATTENZIONE CON LE PILE AL LITIO!

In caso di utilizzo errato (surriscaldamento, errata posizione dei poli o cortocircuito) delle pile al litio consiste pericolo di esplosione!
Le pile al litio si possone soltituire solo con pezzl di ricambio originali.

(E) AVISO!

Bateria de litio.
Por una inadecuada intervención puede explotar.
Solo debe ser cambiada por una persona con conocimientos técnicos (como en la guía de reparación se describe).

(DK) ADVARSEL!

Lithium batteri. Eksplosionsfare.
Udskiftning ma kun foretages af en sagkyndig, og som beskrevet in servicemanualen.

(S) VARNING!

Eksplosionsfara vid felaktigt batteribyte!
Använd samma batterityp eller ekvivalent typ som rekommenderas av apparattillverkaren.

(SF) VAROITUS!

Paristo voi räjähtää, jos se on virheellisesti asennettu!
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.

Survey of Direction for use (only VHS sets included)

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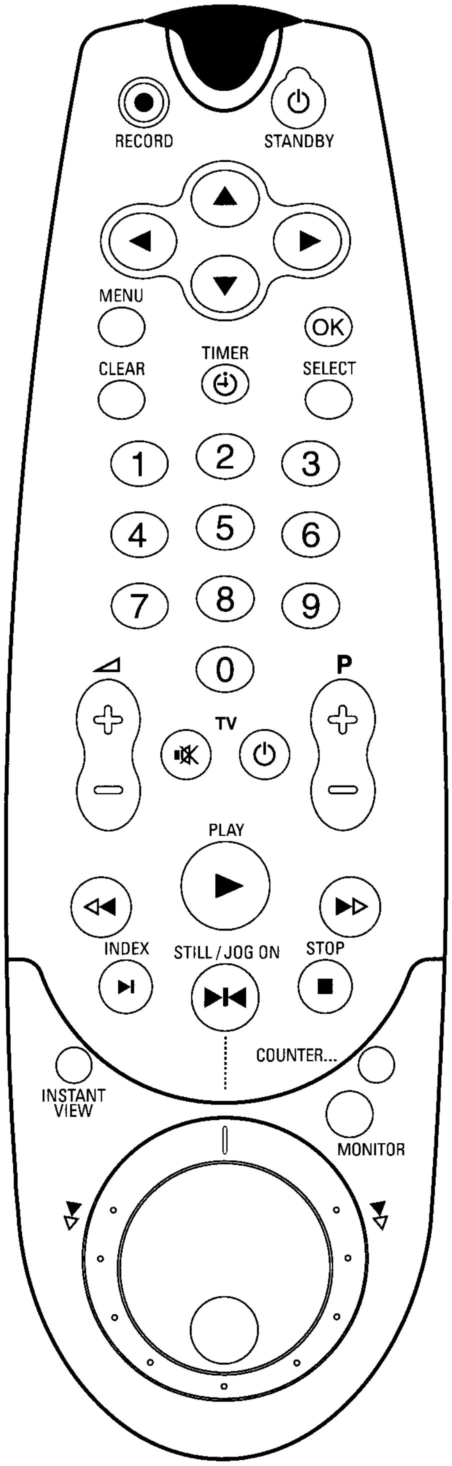
Remote control of TV sets 1-22

1. BUTTONS, CONTROLS AND SOCKETS

For detailed explanations of the functions, see the corresponding chapters.

The remote control


RECORD
STANDBY
MENU
OK
CLEAR
TIMER
SELECT
1
2
3
4
5
6
7
8
9
0
P
TV
PLAY
INDEX
STILL / JOG ON
STOP
COUNTER...
INSTANT VIEW
MONITOR

RECORD ●	Recording
STANDBY ⏻	Switching off
▲ / ▼ / ◄ / ►	Cursor up/down, left/right
MENU	Call up the OSD page MAIN MENU
OK	Confirm entry
CLEAR	Reset/clear
TIMER ⊙	TIMER programming
SELECT	Select function
0 – 9	Numeric buttons
◁◀	Rewind/picture search reverse
PLAY ►	Playback
▶▷	Fast forward wind/picture search forwards
INDEX ▶I	Search index mark
STILL / JOG ON ▶I◀	Still picture, Jog/Shuttle on/off
STOP ■	Stop/Pause
INSTANT VIEW	Picture search during fast wind
COUNTER	Tape counter
MONITOR	TV monitor function
-◎+	Jog/Shuttle

Additional TV functions: only for TV sets with the **same** remote control code.

TV ◢ + / −	TV volume +/-
TV 🔇	TV sound on/off
TV ⏻	TV off
TV P + / −	TV programmes +/-

The buttons which are not listed have **no** function.

2. INSTALLATION.
HOW DO I INSTALL THE VIDEO RECORDER ?

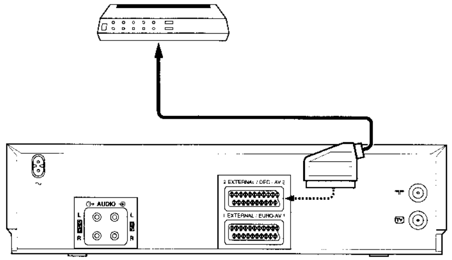
Saving energy

There are two ways of switching off to choose from.
1. Normal switch-off. Switch off by pressing the button LOW POWER / STANDBY ⏻. The time remains visible.
2. Energy-saving mode.
Press the button LOW POWER / STANDBY ⏻ once again. The time in the display disappears. You can switch back on again by pressing the same button.

Note:
* It is not possible to switch to energy-saving mode as long as a TV set connected with a scart cable is switched on. "TV ACTIVE" appears in the video-recorder display.

Connecting to a decoder

Some TV stations transmit encoded (encrypted) signals which you can only decode for viewing if you use a bought or hired decoder (descrambler).

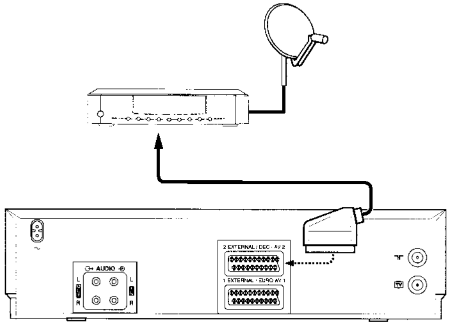


❶ Connect the decoder with a Scart cable to the DEC.-AV 2 socket on the video recorder.
How to programme the decoder function when storing TV channels is described in the chapter **"Storing TV channels"**.

Notes:
* It is not possible to use the decoder at the same time for the video recorder and the TV set.
* The video recorder will automatically use the decoder when a programme position is selected on the video recorder which has been assigned to the decoder function when storing TV channels.

Connecting to a satellite receiver

It is possible to connect a satellite receiver to this video recorder.



❶ Connect the satellite receiver by means of a Scart cable to the video recorder (socket DEC.-AV 2).

❷ Switch the video recorder on and select the programme position "E 2".

Connecting to hifi equipment

You can play the sound of your video rcorder via your hifi equipment.

❶ Connect the AUDIO L IN R and AUDIO L OUT R sockets on the back of your video recorder with the corresponding sockets on your hifi equipment.
A cable can be purchased at a specialized dealer.

Emergency interrupt

The video recorder and the remote control have an emergency interrupt function. You can interrupt any function by pressing the STANDBY ⏻ button.
Whenever you have any problems while operating the video recorder, you can simply interrupt any function and start again.
You can practise using the video recorder without worrying. No matter which button you press, you won't damage the video recorder.

3. STORING TV CHANNELS

In order that your video recorder can record TV programmes, the TV channels (e.g. "ARD") must first be stored in the video recorder.
You can store up to 99 TV channels.
Your video recorder has a receiver of its own. This means it can be used independently of the TV set.

The "Easy Link" function

This function enables your video record to exchange information with the TV set. For this reason, also take note of the operating instructions that accompany your TV set.

The TV set and video recorder (EURO-AV 1 scart socket) must be connected using the **special scart cable supplied** and your TV set must **have** the "Easy Link" function.

❶ Switch on the TV set.

❷ Pull out the mains plug and plug it back in again.

❸ The video recorder automatically loads all of the TV channels stored in the TV set in the correct order. This can also take a few minutes.
The following display appears on screen:
"EASY LINK loading from TV – please wait",
"EASY LINK" appears in the video-recorder display.
Once all TV channels have been found, the video recorder switches itself off.

❹ Select the desired display language. To do this, press the button ATS on the video recorder.

❺ The OSD page "LANGUAGE" appears on screen. Select the desired display language.

❻ Confirm the setting by pressing the button OK. The OSD page "COUNTRY" appears on screen. Select your country.

❼ Confirm the setting by pressing the button OK. "EASY LINK" appears briefly in the videorecorder display.

It is still possible at this stage to assign special functions to certain channel numbers. For further information, see the section "Manual search".

ATS Euro+
(Automatic channel search)

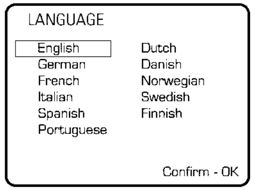
The ATS Euro + function is not possible if the connected TV set has "Easy Link".

The video recorder will make a search for all TV channels. It orders them in a logical sequence in the memory.

❶ Switch the TV set on and select the channel number for the video recorder.

❷ Press the button ATS on the video recorder.

❸ The OSD page "LANGUAGE" appears on screen. Select the display language desired.



LANGUAGE

English	Dutch
German	Danish
French	Norwegian
Italian	Swedish
Spanish	Finnish
Portuguese	

Confirm - OK

❹ Confirm by pressing the button OK.
The OSD page "COUNTRY" appears on screen. Choose your country.

❺ Confirm by pressing the button OK.
The automatic tuning begins.

❻ Wait until all TV channels have been found. This may take a few minutes.
Once all TV channels have been found, a message, e.g. "ATS Euro+ ready 28 TV channels found" appears on screen. The automatic channel search is over.

❼ Press the button OK. The OSD page "INSTALLATION MENU" appears on screen.

❽ Complete the setting by pressing the button MENU.

Note:
*When an ATS Euro+ is restarted, the "INSTALLATION MENU" appears after Step ❷.
Select "ATS Euro+" and proceed with Step ❻.
TV channels already stored will be retained. If the message "FULL" appears briefly in the video recorder display, all of the video recorder's channel storage places have been occupied.

For details of how to change the sequence, please read the section entitled "Channel preset".
At this stage, you can still determine special functions for certain channel numbers. See the section "Manual search" for further information.

Assigning TV channels automatically (Follow TV)

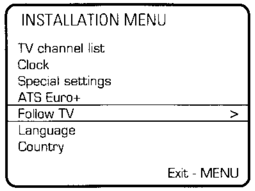
The following setting is not necessary if the TV channels have been set using the "Easy Link" function.

Only if the video recorder (socket **EURO-AV 1**) and the TV set are connected **by means of a scart cable** can the TV channels be allocated automtically.
This means that the video recorder takes on the same channel sequence as the TV set.

❶ Switch the TV set on and select the channel number for the video recorder.

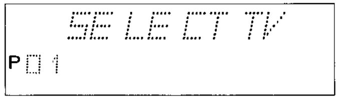
❷ Press the button **ATS** on the video recorder.

❸ Select the line "Follow TV". Press the button ▶.



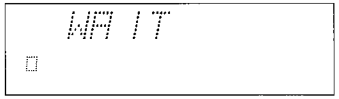
INSTALLATION MENU
TV channel list
Clock
Special settings
ATS Euro+
Follow TV >
Language
Country
Exit - MENU

❹ The video recorder's display indicates "SELECT TV P01".

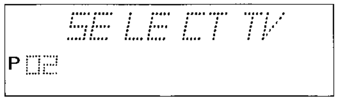


❺ Select the programme position "1" **on the TV set**.

❻ Confirm with the **OK** button on the video recorder's remote control. The video recorder's display indicates "WAIT". The video recorder compares its programme positions with the programme positions of the TV set.
If the programme position on the video recorder and on the TV set is the same (e.g. "P 01"), the video recorders loads the TV channel from the TV set.



❼ Wait until the video recorder's display indicates, for example, "SELECT TV P02".



❽ Select the programme position "2" **on the TV set**.

❾ Confirm with the **OK** button on the video recorder's remote control. The video recorder's display indicates "WAIT".

❿ Repeat the steps ❼ to ❾ until all TV channels are allocated.

⓫ Press the **MENU** button to terminate the adjustment. The video recorder's display indicates briefly "READY".

It is possible to assign special functions to certain programme positions. This is explained in the paragraph "Manual search".

Assigning TV channels manually

The following setting is not necessary if the TV channels have been set using the "Easy Link" or "ATS Euro+" functions.

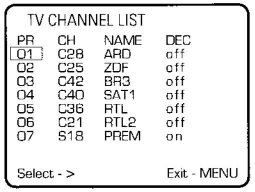
This function enables you to allocate any TV channel found to the programme number of your choice so that you have, for example, the same TV channel sequence as on your TV set.

❶ Switch on the TV set and select the programme number for the video recorder.

❷ Call up the "INSTALLATION MENU" by pressing button **ATS**. The line "TV channel list" becomes active.

❸ Confirm the line by pressing the button ▶. The panel "TV CHANNEL LIST" appears. The last programme number selected e.g. "01" becomes active.

❹ Select the TV channel that you wish to move by pressing the button ▼ or ▲.
Press the button ▶.

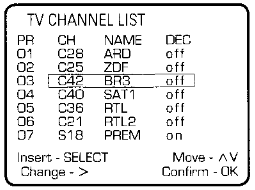


TV CHANNEL LIST

PR	CH	NAME	DEC
01	C28	ARD	off
02	C25	ZDF	off
03	C42	BR3	off
04	C40	SAT1	off
05	C36	RTL	off
06	C21	RTL2	off
07	S18	PREM	on

Select - > Exit - MENU

❺ Using the button ▼ or ▲, move the TV channel to the desired programme storage place.



TV CHANNEL LIST

PR	CH	NAME	DEC
01	C28	ARD	off
02	C25	ZDF	off
03	C42	BR3	off
04	C40	SAT1	off
05	C36	RTL	off
06	C21	RTL2	off
07	S18	PREM	on

Insert - SELECT Move - ∧V
Change - > Confirm - OK

❻ Confirm by pressing the button **OK**. The TV channel line is inserted and the other channel lines are moved on a line. If you wish to cancel an **unde sired** TV channel, press the button **CLEAR** instead of button **OK**.

❼ Sort all of the TV channel lines (steps ❹ - ❻) into the desired order.

❽ Complete the setting by pressing the button **MENU** twice.
If you wish to change the basic setting, read the detailed notes in the section "Manual search".

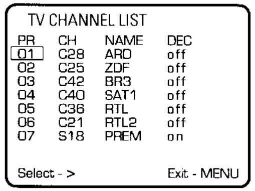
Manual search

In certain cases, the "Automatic channel search" will not be able to find all TV channels (e.g. encoded channels).
In this case, you can set the channels using the "Manual search" function.

❶ Switch the TV set on and select the programme number for the video recorder.

❷ Call up the "INSTALLATION MENU" using button ATS, the line "TV CHANNEL LIST" becomes active.

❸ Confirm the line by pressing the button ▶. The OSD page "TV CHANNEL LIST" appears. The last selected programme number, e.g. "01" becomes active.



TV CHANNEL LIST

PR	CH	NAME	DEC
01	C28	ARD	off
02	C25	ZDF	off
03	C42	BR3	off
04	C40	SAT1	off
05	C36	RTL	off
06	C21	RTL2	off
07	S18	PREM	on

Select - > Exit - MENU

❹ Select the TV channel whose channel/frequency number or basic setting you wish to change by pressing the button ▼ or ▲.

❺ Press the button ▶ twice.
The channel and OSD page, e.g. "TV CHANNEL SETTING P28" appear on screen.

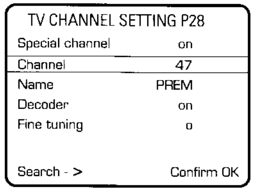
The following basic settings can be changed:
- the programme number sequence, the frequency,
- the channel/special channel, the TV channel name,
- the decoder assignment and
- fine tuning of the TV channel.

Select the line "channel" or "frequency".
Depending on the selection made in the "SPECIAL SETTINGS" menu, a channel or frequency number can be entered. (See the section on special settings for video recorder and TV set in Chapter 8).

❻ If you wish to set a new TV channel, press the button ▶ until you have found the right one.
A changing channel or frequency number appears on screen.

If you know the channel transmission frequency or channel number, the frequency (4-digit) or channel number (2-digit) can also be directly entered using the digit buttons 0 – 9.

❼ If you wish to change the basic setting of a TV channel, select the desired line.



TV CHANNEL SETTING P28

Special channel	on
Channel	47
Name	PREM
Decoder	on
Fine tuning	0

Search - > Confirm OK

❽ Change the basic setting by pressing the button ◀ or ▶ or by using the digit buttons 0 – 9.

❾ Press the button OK. The TV channel and basic setting are stored.

❿ If you wish to search for additional TV channels, begin again with Step ❹.

⓫ Complete the setting by pressing the button MENU twice.

4. PLAYING A RECORDED CASSETTE

Still picture/super slow motion

❶ Press the PLAY ▶ button.

❷ Press the STILL / JOG ON ▶◀ button. The picture "freezes" and the display indicates "▶◀". Each time you press the STILL / JOG ON ▶◀ button, the still picture advances one step.

Press and hold down the STILL / JOG ON ▶◀ button.
The video recorder switches to super slow motion.

❸ Press the PLAY ▶ button to return to normal play.

Slow motion

❶ Press the STILL / JOG ON ▶◀ button.
The video recorder switches to still picture mode.

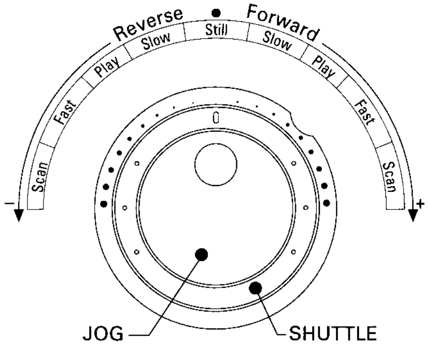
❷ Press the ▶▷ button repeatedly.
The display indicates "II▶".
Threee slow motions speeds can be selected: 1/7, 1/10, 1/14 of the normal playback speed. Pressing the ◁◀ button repeatedly returns you to the still picture mode.
During slow motion, the sound is muted.

❸ Press the PLAY ▶ button to return to normal play.

The JOG/SHUTTLE functions

There is a large rotary knob -◎+ both on the video recorder and the remote control.

❶ Switch the function on by pressing the STILL / JOG ON ▶◀ button.



❷ Use the inner JOG disk to select the next or previous still picture.

❸ Turn the inner disk continuously to the right to switch to super slow motion.

❹ The outer SHUTTLE ring on the remote control **or** the video recorder enables you to select different tape speeds for the forward or reverse picture search.

❺ Press the PLAY ▶ button to return to normal play.

Note:
* During the picture search (scan) function, the picture quality is adversely affected and the sound is muted.

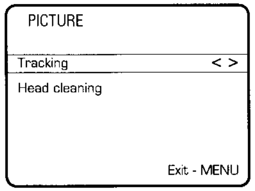
Correcting picture interference. The cleaning function

Each time you start a new playback, the video recorder automatically adjusts the correct tracking for the cassette.
For cassettes recorded on another recorder, it is possible to improve the automatically made optimum adjustment as follows.

❶ Press the MENU button on the remote control.

❷ During playback or still picture mode, select the menu line "Picture" and confirm with the ▶ button.

❸ The "PICTURE" menu appears on the screen.
The option "Tracking" (on playback) **or** "Vertical jitter" (still picture) is highlighted.



❹ Press the ◀ or ▶ button until the best picture quality is obtained.

If horizontal interference bars cannot be removed, proceed as follows:

❺ Select the menu item "Head cleaning".
During playback, press the ▶ button.
The video heads are cleaned.

❻ Terminate the adjustment with the MENU button.

Note:
* When using cassettes of bad quality, it is nevertheless possible that interferences occur.

Selecting the audio track, audio-mix

You can select the audio track you want to hear during playback or in tuner mode. This is especially useful for two-channel sound (multi-language) transmissions.

❶ Press the SELECT button. The display indicates the current setting. If you press the SELECT button repeatedly, you can select between four possibilities (STEREO, LEFT, RIGHT, MONO).

Notes:
* During playback, you can select a further possibility, the "MIXMODE" function.
With this function, you will hear the mono sound of the normal (linear) track together with the sound of the stereo track. This enables you to play recordings which have been dubbed on another video recorder.
* If no stereo sound is recorded on the cassette, the video recorder switches automatically to mono sound.

Surround-sound playback

If your TV set or hifi equipment is suited for sourround-sound play, the video recordings will be played back with this audio system.

How do I know where I am currently on the tape?

The length of the tape is indicated in minutes on the cassette, e.g. "E180" corresponds to 180 minutes playing time (= 3: 00 hrs).
The length indication is found on the front narrow side of the cassette to the left. The actual playing time may be slightly longer than indicated (e.g. 3: 05 hrs).

❶ Start the tape measurement function with the COUNTER button on the remote control.
After a few moments, the video recorder's display indicates briefly , e.g. "TIME LEFT 2:20"

Then the video recorder switches, for example, to "STOP".
The video recorder's display indicates, for example, "P03 L 2:20"

❷ With the COUNTER button, you can select between the following indciations:
elapsed playing time e.g. 0:40
remaining playing time e.g. L 2:20 ("**L**"=TIME LEFT)
real time counter e.g. 00:1:45 (in hrs/min).

Notes:
* When a cassette is inserted, the video recorder must at first calculate the playing time. That is why the display indicates at first " - : - - " and only after several seconds tape run the playing time.
* You can set the tape counter manually to "0". Use the COUNTER button to select the counter mode, then press the CLEAR button.
* If a minus sign appears in front of the real time counter (e.g., "– 0:20"), the tape is not wound to its beginning.
* The indications can be read off exactly to the minute during recording, playback and pause/stop.

Index search

The video recorder writes a mark on the tape every time a recording is started. With the INDEX ▶|, ◁◀, ▶▷ or PLAY ▶ buttons on the remote control you can find these marks on the tape.

❶ Press the INDEX ▶| and ▶▷ buttons to find the next mark and the INDEX ▶| and ◁◀ buttons to find the previous mark. The video recorder's display indicates "INDEX".

❷ As soon as the mark is found, the video recorder switches automatically to playback.

Intro-scan

❶ Press the INDEX ▶| and PLAY ▶ buttons. The video recorder's display indicates "INTRO".

❷ The tape is wound to the next mark, played back for 10 seconds, then wound to the next mark and played back for 10 seconds, and so on.
When the end of the tape is reached, the tape is automatically rewound to the beginning.

Notes:
* If you press any tape run button (e.g. PLAY ▶ or STOP ■) during the index search or intro-scan function, the video recorder interrupts this function.
* For recodings made without marks on another video recorder, the index search and intro-scan functions cannot be used.

5. HOW CAN I RECORD DIRECTLY ?

If you wish to record, proceed as follows:

❶ Switch the video recorder on.
Insert a cassette not protected against recording.

❷ Use the ▼ or ▲ button to select the programme position from which you wish to record, e.g. "P01".

Note on TV sets with "Easy Link" function:
* The video recorder will **always** record the TV programme currently selected on the TV set.
You can switch off the TV set, switch it on again or change the programme without affecting the recording.

❸ Press the RECORD ● button to start recording.

The video recorder's display indicates "●" and the video recorder records the desired TV programme.

❹ Press the STOP ■ button to terminate recording.

Can I switch off the TV set during recording ?
Yes! This video recorder is provided with its own reception unit. This means that it can record TV broadcasts independently of the TV set.
You can switch off the TV set, switch it on again or change the programme without affecting the recording.

Note:
* If you don not wish to record till the end of the cassette, press the RECORD ● button a second time. The display then indicates the time when the recording will end. Each further pressure on the RECORD ● button increases the end time in steps of 30 minutes.
If you have pressed too often, press the CLEAR button to return to the normal recording mode.
When the end time is reached, the video recorder switches automatically off.

General notes:
* The programme positions "E1","E2" and "AV" are intended for recordings from external video/audio sources via the sockets EURO-AV 1, DEC.-AV 2, VIDEO and L AUDIO R.
* Do you wish to change to another TV programme during recording and record this?
Interrupt the current recording with the STOP ■ button.
Select the new programme number and start the recording with the RECORD ● button.
* If no cassette is loaded, the message "NO CASS" appears.
* If a cassette protected is loaded, the video recorder switches automatically to "PLAYBACK".
* If the tape end is reached during recording, the cassette is automatically ejected and the recorder switches off after a few minutes.
* When making a new recording, the existing recordings on the cassette are automatically erased.

Assembly editing

This function serves for joining single recordings or scenes without disturbing transitions.

❶ Press the PLAY ► button. Search for the correct position on the tape and then stop playback with the STOP ■ button. "II" appears in the display.

❷ Now begin recording as usual with the RECORD ● button.

Direct recording with TV sets without "Easy Link" function

Do you wish to record a TV programme you are currently watching? Press the RECORD ● button on the video recorder.

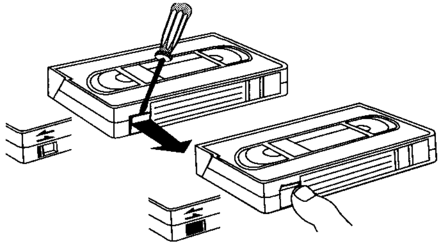
The video recorder "calls up" the current programme position number from the TV set via the Scart cable and starts recording.

Notes:
* In order for "Direct Record" to function, it must be switched to "on" as described in Chapter 8 in the section entitled "Personal preferences" .
* The video recorder must be connected via a Scart cable to an appropriate TV set.
* Not all external units (e.g. certain satellite receivers, Pay-TV decoders) are appropriate for the "Direct recording" function.
* Select another programme number on the TV set not until "READY" appears in the video recorder's display.

Erase protection

So that you don't accidentally delete an important recording, you can remove the special tab (erase protection) on the front of the cassette with a screwdriver or slide it to the **left**.

Later, if you no longer want the erase protection, you can seal the gap once more with adhesive tape or slide the tab to the **right**.



Longplay function

You can reduce the recording speed by half. This makes it possible to record, for example, 8 hours instead of 4 hours with an "E240" cassette.

❶ To do this, you must select "LP" for the tape speed in paragraph "Personal preferences" in chapter 2 "Installation".
The video recorder's display indicates "LP".

❷ When starting playback, the video recorder will automatically select the correct tape speed.

Notes:
* You will get the best picture and sound quality if you record with standard speed ("SP").
* During picture search, still picture, super slow motion and slow motion, playback is not in colour.

HiFi stereo reception

This video recorder can record and play back stereo broadcasts. Playback then is in hifi quality. The digital recording level control automatically adjusts the correct sound level. You need not make any adjustments.

6. HOW DO I PROGRAMME A RECORDING?

Programming with "ShowView'

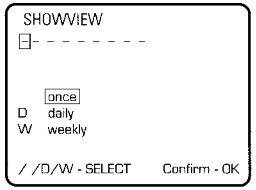
This method makes programming your video recorder as easy as dialing a telephone number.
All you need to do is enter the (three- to nine-digit) ShowView code which is printed in your TV guide next to the starting time for the TV programme.
You can enter the ShowView code in the OSD page on the picture screen or in the display on the video recorder.
Be sure you have inserted a cassette without erase protection.

❶ Switch on the TV set and select the programme position intended for the video recorder.

❷ Press the **TIMER ⏲** button on the remote control. The OSD page "TIMER" appears on the picture screen.

❸ Select the option "ShowView". Confirm with the **▶** button.

❹ The OSD page "SHOWVIEW" appears on the picture screen.



❺ Enter the ShowView code with the numeric buttons **0 – 9**. If you make a mistake, use the **CLEAR** button to correct it.

❻ If you wish to programme daily or weekly recordings, use the **SELECT** button to select the "daily" or "weekly" option.
Daily recordings can be programmed only for the weekdays Monday through Friday.

❼ Press the **OK** button. The programmed code now is deciphered. After the code has been deciphered correctly, the corresponding information appears on the picture screen and in the display on the video recorder.

Notes
* When programming with ShowView for the **first time**, the programme position "E 2" is used.
On the picture screen appears the message "Please enter programme number".
Use the **▼** or **▲** button to select the "correct" programme position number (e.g. "Prog 01" for "ARD"). Confirm with the **OK** button.
The video recorder will use this programme number for all future ShowView programmings for this TV channel.
* The "VPS/PDC" function can be switched on and off with the **SELECT** button.

❽ Have you entered all the data correctly?
If you have, press the **OK** button.
"Timer ready" appears briefly in the screen display.

The symbol "⏲" appears in the video-recorder display. It indicates that a TIMER has been programmed.

❾ Terminate programming with the **STANDBY ⏻** button.

Some important information:
* If you wish to use the programme number "E2" in order to record from an external source (e.g. from a satellite receiver), confirm the programme number "E2" indicated in Step ❼ by pressing the button **OK**
* If "CODE ERR" appears in the display, the numerical code is wrong or has been entered wrongly. Repeat the entry or terminate by pressing the button **STANDBY ⏻**.
* If "SET CLOCK" appears in the display, the internal clock of the video recorder has not been set. Set the clock.
* Daily recordings can only be programmed for the weekdays Monday to Friday.
* In the case of "daily/weekly" programming, the first recording must be made within the first week.
* Some TV programmes go on for longer than advertised. If you wish to enter a later end time, select "END" using the button **▶** in Step ❼ and enter the end time using the button **▼** or **▲** or the digit buttons **0 – 9**.
* The "ShowView" menu appears straight after Step ❷ if you have set the display "ShowView" on the OSD page "PERSONAL PREFERENCES".
(See Step ❺ of the section "Setting the video recorder to your individual operating requirements" in Chapter 8).

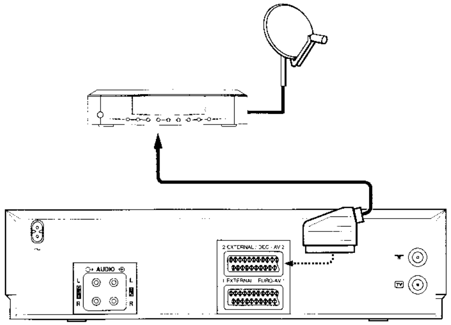
How can I record from a satellite receiver?

It is also posssible to programme recordings from an external satellite receiver.

❶ Connect the satellite receiver with the socket **DEC.-AV 2**. Make sure that the satellite receiver is switched on and tuned to the desired satellite station.

❷ Programme a TIMER block using one of the already described methods. Select the programme position "E2" for the external programme source (satellite receiver).

Note:
* If you use "Programming with ShowView" for the Timer recording from the "external" satellite receiver, the video recorder selects automatically the programme position "E2".
In this case, you can ignore the message "Please enter programme number".



A few general notes on programming

- The programmed recording will always be effected with the recording speed (SP or LP) selected in the OSD page "PERSONAL PREFERENCES".
- If you have forgotten to insert a cassette before programming, the recorder's display indicates "NO CASS".
- If you insert a cassette with erase protection for the recording, the indication "PROTECTED" briefly appears in the video recorder's display after you have finished programming. The cassette is then ejected.
- If the end of the cassette is reached during a TIMER recording, the recorder ejects the cassette.
- TIMER recording is only possible if the video recorder is **switched off**. If the video recorder is switched on before a programmed recording, the message "TIMER REC" flashes in the display.
- If the recording times of the TIMER blocks overlap each other, the message "COLLISION" appears in the video recorder's display.
In this case , you must correct or clear the data of one TIMER block. How this is done is explained in the paragraphs "How can I check, clear or correct a TIMER block?"
- If you have programmed all TIMER blocks, the message "FULL" appears in the video recorder's display. Refer to the paragraphs "How can I check, clear or correct a TIMER block?
- If the end of the cassette is reached during a TIMER recording, the recorder ejects the cassette. The video recorder's display indicates "TIMER REC".
Insert a "new" cassette into the video recorder then press the **STANDBY ⏻** button on the remote control to resume the TIMER recording.
- If TIMER recordings are programmed, the video recorder cannot be switched in the "save energy mode"

Sorting TV programmes for TIMER programming

Do you prefer certain TV programmes for TIMER recording?
With the Sort function, you can create a separate programme list to your preferences.

> Note:
> * The programme order stored in the video recorder is **not changed.** Only the TV programmes in the OSD page "EASY TEXTPROGRAMMING" are brought in a new order.

❶ Switch on the TV set and select the programme position intended for the video recorder.

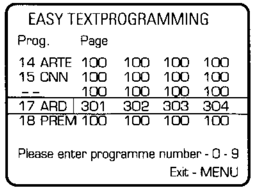
❷ Press the MENU button on the remote control. The OSD page "MAIN MENU" appears on the picture screen.

❸ Select the option "Easy Textprogramming". Confirm with the ▶ button.

❹ The OSD page "EASY TEXTPROGRAMMING" appears on the picture screen. A page number of the last selected programme position is highlighted.
Use the ◀ button to select the programme position.
The number of the programme position and the programme name are highlighted.

❺ Select your favourite TV programme from which you wish to make most of your TIMER recordings.

❻ Press the SELECT button. The programme name disappears and two horizontal lines appear in the place of the programme position number.



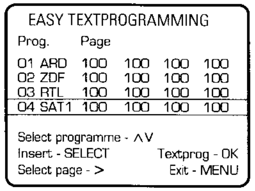
```
EASY TEXTPROGRAMMING
Prog.    Page
14 ARTE  100   100   100   100
15 CNN   100   100   100   100
--       100   100   100   100
17 ARD   301   302   303   304
18 PREM  100   100   100   100

Please enter programme number - 0 - 9
                          Exit - MENU
```

❼ Enter the programme position number "01" as **two digits** with the numeric buttons 0 – 9. When the entry is completed, the selected TV programme is allocated to the fist programme position and the other programmes are shifted by one position.

❽ Select the TV programme you wish to appear at the second position in the list.

Repeat the steps ❺ to ❼ until your favourite TV programmes are in the desired order.



```
EASY TEXTPROGRAMMING
Prog.    Page
01 ARD   100   100   100   100
02 ZDF   100   100   100   100
03 RTL   100   100   100   100
04 SAT1  100   100   100   100

Select programme - ∧V
Insert - SELECT        Textprog - OK
Select page - >          Exit - MENU
```

❾ Terminate with the MENU button.

7. EDITING VIDEO RECORDINGS

It is not possible to simply cut video tapes with a pair of scissors then splice them.

If you wish to join and/or insert new scenes without disturbing transitions and exactly to the picture into existing recordings, it is necessary to use an electronic cutting facility when copying from one video tape to another.
This creation of "new" video recordings is called "editing". For editing, different methods can be used.

Audio dubbing
This means that an appropriate sound is added to an existing video recording.
With this function, it is possible to **replace** the mono sound track on the video tape with another sound. The old mono track is completely erased. The stereo sound track and the video recording remain unchanged.

The insert and insert-edit functions
With the insert functions, it is possible to conveniently insert other picture and/or sound recordings into existing recordings **without disturbing transitions.** You have the choice between three insert functions.

Synchronous editing (synchro-edit)
When copying between this video reocorder and a second video recorder or camcorder being correspondingly equipped, this function provides for a synchronous start of both units.
This ensures that every scene will be copied **exactly to the picture** and **without disturbing transitions.**

Audio dubbing

With this function, it is possible to replace the mono sound track on the video tape with another sound. Connect the sound source (e.g. a CD player) to the input sockets L AUDIO R (at the front of the video recorder, behind the flap at the left).

Make sure that the "correct" cassette is inserted into the video recorder.

❶ During playback, search the tape position where dubbing is to be started.

❷ Press the STOP ■ button.

❸ Press the MENU button on the remote control. Select the option "Edit". Confirm with the ▶ button.

❹ The OSD page "EDIT" appears on the picture screen. Select the option "Dubbing". Confirm with the ▶ button.

Follow the user guide on the OSD page.

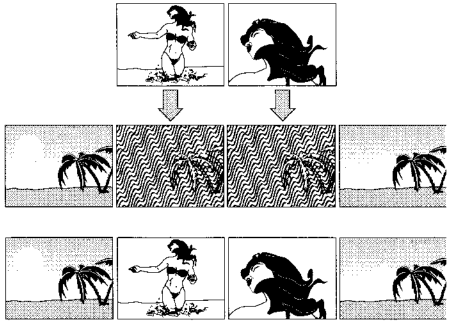
❺ The OSD page "AUDIO DUB" appears on the picture screen. Switch the sound source on.
Start dubbing at the right moment by pressing the RECORD ● button.
The video recorder records the sound from the external sound source. The sound level is automatically controlled. The sound track is replaced and recorded again.

❻ Interrupt dubbing with the STOP ■ button.

❼ Terminate dubbing with the MENU button or the STANDBY ⏻ button on the remote control.

The insert functions

With the insert functions, it is possible to conveniently insert other picture and/or sound recordings into existing recordings.



Connect the video/audio source to the input sockets **VIDEO** and **L AUDIO R** (= AV) of the video recorder. The sockets are located behind the left flap at the front of the recorder, **or**
connect the video/audio source to the Scart sockets **EURO-AV 1** or **DEC.-AV 2** of the video recorder. The sockets are located on the back of the video recorder.

You have the choice between three insert functions.

- "INSERT DUBBING": the picture, the hifi sound (helical track), and the mono sound (longitudinal track) are newly recorded.
- "INSERT VIDEO": the picture and the hifi sound (helical track) are newly recorded, the mono sound (longitudinal track) is maintained.
- "INSERT COPY": the picture is newly recorded. The mono sound (longitudinal track) is retained and transferred onto the hifi track (helical track).

Please also see the operating instructions of the connected unit.
Insert the recorded cassette into the video recorder.
Make sure the cassette is not protected against recording!

❶ Switch on the TV set and select the programme position intended for the video recorder.

❷ Switch the video recorder on and select the programme position for the connected video/audio source ("AV", "E1" or "E2").

❸ Press the **MENU** button on the remote control. Select the option "Record modes". Confirm with the **▶** button.
The OSD page "RECORD MODES" appears on the picture screen.

Follow the user guide on the OSD page.

❹ Select the desired insert function:
"INSERT DUBBING" **or** "INSERT VIDEO" **or** "INSERT COPY".

❺ Search the desired end of the insert recording on the cassette in the video recorder.
Press the **CLEAR** button to reset the tape counter to "00:00:00".

❻ Search the desired beginning of the insert recording on the cassette in the video recorder.
Press the **STOP ■** button.

❼ Switch on the external video/audio source. Search the beginning of the insert recording.

❽ Start the insert recording at the "correct" moment with the **RECORD ●** button.
The insert recording is **automatically stopped** when the tape counter has reached "00:00:00".

❾ Press the **MENU** button or the **STANDBY ⏻** button on the remote control to terminate the recording.

Note on "INSERT VIDEO":
* To start playback of the "original" sound, repeatedly press the **SELECT** button on the remote control until the video recorder's display indicates "MONO".

Adjusting the video recorder (VCR) to the camcorder (CC) (edit-setup)

You can synchronously copy between this video recorder (VCR) and an appropriately equipped camcorder (CC). Both units are started at the same time with the help of a synchronous impulse and an adjustable start delay (= preroll time).
Various operating and cabling variants are possible. You will find an overview of the synchro-edit cables at the end of this operating manual.

Connect the two units with the corresponding synchro-edit cable (socket **SYNCHRO EDIT** on your video recorder).
Connect the video/audio source to the input sockets **VIDEO** and **L AUDIO R** (= AV) on the video recorder. The sockets are to be found behind the left flap at the front of the recorder.

Please also observe the operating instructions of the camcorder.
Insert a cassette **without erase protection** into the video recorder

❶ Switch on the TV set and select the programme position intended for the video recorder.

❷ Press the **MENU** button on the remote control. The OSD page "MAIN MENU" appears on the picture screen.

❸ Select the menu option "Edit". Confirm with the **▶** button.

❹ The OSD page "EDIT" appears on the picture screen; the option "Edit Setup" is highlighted. Confirm with the **▶** button.

Follow the user guide on the OSD page.

❺ Switch the **camcorder** to **playback-pause**.

❻ Press the **OK** button on the video recorder's remote control. Wait until the video recorder has recognized the connected camcorder.

Follow the user guide on the OSD page.

❼ You can call up the default start delay (= preroll time) for the connected camcorder type by pressing the **CLEAR** button. It is then possible to alter the preroll time with the **◀** or **▶** button.

❽ Press the **▼** button.
Select the desired insert edit function:
"INSERT DUBBING" **or** "INSERT VIDEO" **or** "INSERT COPY".

❾ Confirm with the **MENU** button.

Note:
* The start delay (= preroll time) must be adjusted only once. The video recorder will save this setting. Keep in mind that other camcorder types must also be adjusted when being used the first time.

Synchronous editing (synchro-edit)

❶ Call up the OSD page "EDIT MENU".
Use the **▼** button to select the option "Synchro Edit". Confirm with the **▶** button.

❷ The OSD page "SYNCHRO EDIT" corresponding to the connected camcorder type appears on the picture screen.

❸ Use the **SELECT** button to select the OSD page for **video recorder** mode. Search the beginning of the recording on the video recorder.
Switch the video recorder to playback-pause.

❹ Use the **SELECT** button to select the OSD page for **camcorder** mode. Search the beginning of the recording on the camcorder.
Switch the camcorder to playback-pause.

Follow the user guide on the OSD page.
The way copying is started depends on the camcorder and the corresponding synchro-edit cable used.

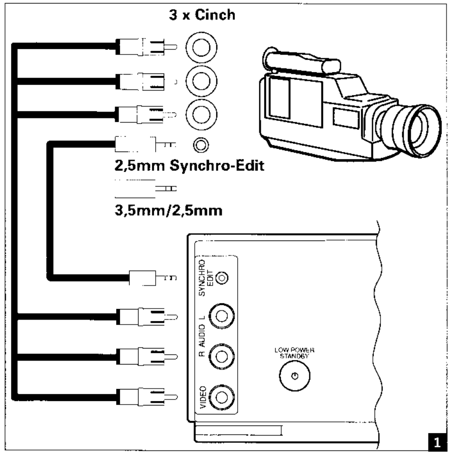
Variant as shown in figure 1 or figure 2 if the video recorder is to control the camcorder.

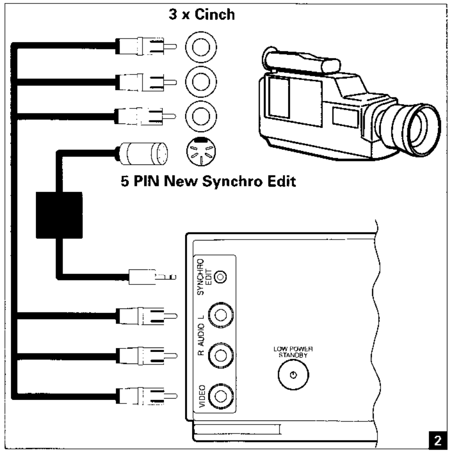
❺ Start copying with the RECORD ● button on the video recorder.
The camcorder starts with "PLAYBACK" and at the same time the video recorder starts with "RECORDING".
The sound level is automatically controlled.

❻ Stop copying with the STOP ■ button on the video recorder.

❼ End copying with the MENU button or the STANDBY ⏻ button on the remote control.

Notes:
* If the beginning of the scene is missing, the preroll time is too long. Set a shorter time.
If recording is started too soon (before the scene to be copied), the preroll time is too short. In this case, the preroll time must be increased.
* If your camcorder is equipped with a 2.5 mm ø control socket (LANC control), the playback and fast wind functions of the camcorder can be controlled with the corresponding buttons on the video recorder.


3 x Cinch
2,5mm Synchro-Edit
3,5mm/2,5mm
SYNCHRO EDIT
R AUDIO L
VIDEO
LOW POWER STANDBY
1


3 x Cinch
5 PIN New Synchro Edit
SYNCHRO EDIT
R AUDIO L
VIDEO
LOW POWER STANDBY
2

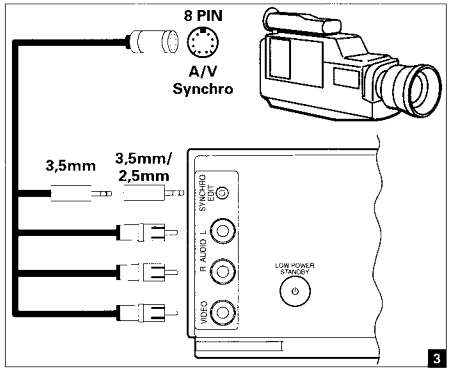
Variant 2 as shown in figure 3 or figure 4 if the camcorder is to control the video recorder.

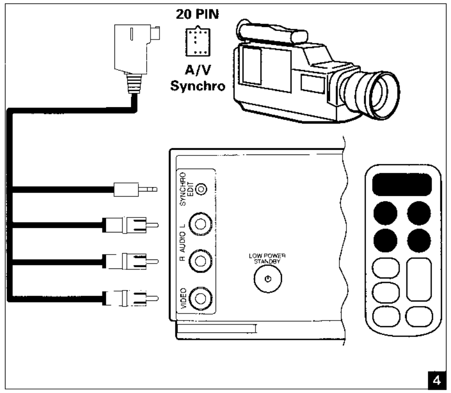
❺ Start copying with the corresponding button on the camcorder or its remote control.
The camcorder starts with "PLAYBACK" and at the same time the video recorder starts with "RECORDING".
The sound level is automatically controlled.

❻ Stop copying with the PAUSE or STILL button on the camcorder or on its remote control.

❼ End copying with the MENU button or the STANDBY ⏻ button on the remote control.

Notes:
* If the beginning of the scene is missing, the preroll time is too long. Set a shorter time.
If recording is started too soon (before the scene to be copied), the preroll time is too short. In this case, the preroll time must be increased.


8 PIN
A/V Synchro
3,5mm
3,5mm/ 2,5mm
SYNCHRO EDIT
R AUDIO L
VIDEO
LOW POWER STANDBY
3


20 PIN
A/V Synchro
SYNCHRO EDIT
R AUDIO L
VIDEO
LOW POWER STANDBY
4

Insert-edit functions

With the insert-edit functions, it is possible to conveniently insert other picture and/or sound recordings into existing recordings.

Connect the two units with the corresponding synchro-edit cable (socket SYNCHRO EDIT on your video recorder).
Connect the video/audio source to the input sockets VIDEO and L AUDIO R (= AV) on the video recorder. The sockets are to be found behind the left flap at the front of the recorder.

You have the choice between two insert-edit methods:

- Method 1 "INSERT VCR": you mark on the cassette in the video recorder the tape position where the "new" recording is to **end**.
- Method 2 "INSERT CC": you mark on the cassette in the camcorder the **beginning** and the **end** of a "scene" (tape position) you wish to insert into an existing recording.
  However, this works only if the camcorder is equipped with a 2.5 mm ø control socket (LANC control).

You have the choice between three insert-edit functions:

- "INSERT DUBBING": the picture, the hifi sound (helical track), and the mono sound (longitudinal track) are newly recorded.
- "INSERT VIDEO": the picture and the hifi sound (helical track) are newly recorded, the mono sound (longitudinal track) is maintained.
- "INSERT COPY": The picture is newly recorded. The mono sound (longitudinal track) is retained and transferred onto the hifi track (helical track).

Note:
* The video recorder will always use that insert function you have selected in the paragraph "Adjusting the video recorder to the camcorder".

Please also see the operating instructions of the camcorder.
Insert the recorded cassette into the video recorder.
Make sure the cassette is not protected against recording!

❶ Switch on the TV set and select the programme position intended for the video recorder.

❷ Press the MENU button on the remote control. The OSD page "MAIN MENU" appears on the picture screen.

❸ Select the menu option "Edit". Confirm with the ▶ button.

❹ The OSD page "EDIT" appears on the picture screen. Select the option "Insert Edit". Confirm with the ▶ button.

The OSD page "INSERT EDIT" corresponding to the connected camcorder type appears on the picture screen.
Follow the user guide on the OSD page.

❺ Confirm the menu option "Insert VCR" **or** select the option "Insert CC".
Confirm with the ▶ button.

Method 1 "Insert VCR":

❻ Use the SELECT button to select the OSD page for **video recorder** mode. Search on the cassette in the video recorder the tape position where the recording is to end. Mark this position with the ▶ button.

❼ Search on the cassette in the video recorder the tape position where the recording is to begin.
Switch the video recorder to playback-pause.

❽ Use the SELECT button to select the OSD page for **camcorder** mode.
Search on the cassette in the camcorder the tape position where the recording is to begin.
Switch the camcorder to playback-pause.

Method 2 "Insert CC":

❻ Use the SELECT button to select the OSD page for **video recorder** mode.
Search on the cassette in the video recorder the tape position where the recording is to begin.
Switch the video recorder to playback-pause.

Depending on the camcorder type connected, it is possible to mark the **beginning** and the **end** of the recording.
Follow the user guide on the OSD page.

❼ Use the SELECT button to select the OSD page for **camcorder** mode. Search on the cassette in the camcorder the tape position where the insert recording is to begin and – if possible – mark the position with the ◀ button, **or**
switch the camcorder to playback-pause.

❽ If necessary, search on the camcorder the desired **end** of the insert recording and mark it with the ▶ button.

Follow the user guide on the OSD page.
How to start the insert recording depends on the camcorder used and the corresponding synchro-edit cable.

Variant 1. The video recorder controls the camcorder

❾ Start copying with the RECORD ● button on the video recorder.
The camcorder starts with "PLAYBACK" and at the same time the video recorder starts with "RECORDING".
The sound level is automatically controlled.

❿ The insert recording is automatically stopped. If you wish to stop earlier, press the STOP ■ button on the video recorder.

⓫ Terminate insert-edit recording with the MENU button or the STANDBY ⏻ button on the remote control.

Variant 2. The camcorder controls the video recorder (only possible with "Insert CC").

❾ Start copying with the corresponding button on the camcorder or its remote control.
The camcorder starts with "PLAYBACK" and at the same time the video recorder starts with "RECORDING".
The sound level is automatically controlled.

❿ The insert recording is automatically stopped. If you wish to stop earlier, press the PAUSE or STILL button on the camcorder or its remote control.

⓫ Terminate insert-edit recording with the MENU button or the STANDBY ⏻ button on the remote control.

Note:
* If your camcorder is equipped with a 2.5 mm ø control socket (LANC control), the playback and fast wind functions of the camcorder can be controlled with the corresponding buttons on the video recorder.

8. ADDITIONAL FUNCTIONS OF YOUR VIDEO RECORDER

In addition to the already described functions, your video recorder has some special features which still increase its convenient use.

The TXT decoder.
Reading TXT with the video recorder

With this video recorder, you can receive TXT programmes broadcast in your country (e.g. Videotext / Teletext / Top / Flof / Fastext / Supertext, etc.), even if your TV set is not provided with the TXT function.
Beside the comprehensive offer of TXT pages, this function offers you two further advantages:

- With your video recorder, you can visualize and record TXT subtitles.
- For record programming, you can take advantage of the convenient help provided by the TXT TV programme overview pages.

How can I read TXT?

❶ Switch on the TV set and select the programme position intended for the video recorder.

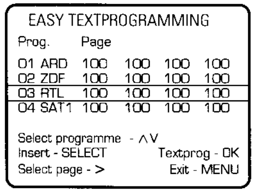
❷ Switch the video recorder on.

❸ Select on the video recorder the TV programme the TXT pages of which you wish to read. For this, use the ▼ or ▲ button or the numeric buttons 0 – 9 on the remote control.

❹ Press the **MENU** button on the remote control. The OSD page "MAIN MENU" appears on the picture screen.

❺ Select the option "Easy Textprogramming". Confirm with the ▶ button.

❻ The OSD page "EASY TEXTPROGRAMMING" appears on the picture screen.
The selected programme position (e.g. "03 RTL") and one Teletext page (e.g. "100") are highlighted.



EASY TEXTPROGRAMMING

Prog.	Page			
01 ARD	100	100	100	100
02 ZDF	100	100	100	100
03 RTL	100	100	100	100
04 SAT1	100	100	100	100

Select programme - ∧V
Insert - SELECT   Textprog - OK
Select page - >   Exit - MENU

❼ Use the **SELECT** button to call up the TXT pages you wish to read.
If you wish to have an overview about the entire TXT information offer, press the ◀ button and then the **OK** button. A programme-specific TXT overview page will appear, **or**
enter the number of the desired TXT page with the numeric buttons **0 – 9**. The number must always be entered as three digits.

The entered page number appears at the left in the top information line on the picture screen. After a few seconds search time, the page appears on the screen.
If you wish to read another page, simply enter the new page number.
With some TV channels, you can use the ◀ or ▶ button on the remote control to directly call up the desired TXT page. You will find the corresponding hints in colour on the bottom picture border.

❽ To switch the TXT decoder off, repeatedly press the **MENU** button until the "normal" TV programme appears on the picture screen.

Externally controlled TIMER recording

Do you have another device, such as a satellite receiver, equipped with an integrated clock which can be used for controlling other devices?
If so, you can control the recording from such an external device via the Scart socket **DEC.-AV 2**.

Insert a cassette not protected against recording.

❶ Switch the video recorder off with the **STANDBY ⏻** button on the remote control.

❷ Press the **MONITOR** button on the remote control for **more than three seconds**.
In the video recorder's display appears "E2 REC PREP".
The video recorder is prepared for recording.

❸ Recording is started and stopped by remote control via the Scart socket **DEC.-AV 2**.

❹ If you wisht to terminate the function **before** a recording is started, press the **MONITOR** button a few seconds until the video recorder switches off.

❺ If you wish to abort the function **during** a running recording, press the **STANDBY ⏻** button.

Notes:
* It is **not** possible to use a decoder with this function.
* If the video recorder is prepared for externally controlled recordings, in cannot be switched in the "save energy" mode.

Tuner mode. Your video recorder as an extension of your TV set

You can also use your video recorder as a TV receiver (tuner). This is handy if your TV set does not have a remote control or if it has fewer programme positions than the number of channels it could actually receive.
A decoder connected can be used.
Proceed as follows:

❶ Switch on the TV set and select the programme position intended for the video recorder.

❷ Switch the video recorder off with the **STANDBY ⏻** button on the remote control.

❸ Press the **STOP ■** button for **more than 3 seconds**.
The video recorder's display indicates the station name and the current time.

❹ Select the desired programme position number with the ▼ or ▲ button, or
enter the number as one or two digits with the numeric buttons **0 – 9**.

❺ Switch the video recorder off with the **STANDBY ⏻** button if you do no longer wish to view TV.

Recording from another video/audio source

With this video recorder, you can make recordings from an external video/audio source, for example a second video recorder or a camcorder.
To do this, a Scart cable will be required.

❶ Connect this video recorder with the unit you wish to record from, for example a second video recorder.

For this, connect the Scart socket of each unit with a Scart cable. On this video recorder, use the **DEC.-AV 2** Scart socket.

> Note:
> * In the following example, your video recorder is used as recording recorder and is referred to as VCR B. The second video recorder is used for playback and is referred to as VCR A.

❷ Insert a recorded cassette into VCR A and a cassette without erase protection into VCR B.

❸ Select the programme position "E2" on the VCR B. This is to be found next to the programme position "P 01" ("P 01" - "E1" - "E2" - "AV"). For this, use the **▼** or **▲** button.

❹ To start recording, press the playback button, for example **PLAY ▶**, on the VCR A and the record button **RECORD ●** on the VCR B.

❺ To stop copying, press the **STOP ■** button on both video recorders.

Recording audio only

You can use your video recorder as a hifi tape recorder.
This means that only the stereo or dual sound is recorded from an external sound source (e.g., hifi equipment, second video recorder, etc.).
Connect your hifi (stereo) unit with an audio connecting lead to the **AUDIO L IN R** at the back of the video recorder.

Insert a cassette without erase protection into the video recorder.

❶ Press the **MENU** button on the remote control. Select the option "Record modes". Confirm with the **▶** button.

❷ The OSD page "RECORD MODES" appears on the picture screen. Select the option "Audio Only". Confirm with the **▶** button.

❸ The OSD page "AUDIO ONLY" appears on the picture screen. Switch on the sound source. Start sound recording at the desired moment with the **RECORD ●** button.

The video recorder records the sound from the external sound source. The sound level is automatically controlled. The video recording on the cassette is erased.

❹ To stop the recording, press the **STOP ■** button.

❺ To terminate this function, press the **MENU** button or the **STANDBY ⏻** button on the remote control.

View mode

You can view the picture from an external unit connected to the Scart socket **DEC.-AV 2** of your video recorder on the picture screen (monitor) of a TV set. The external unit can be, for example, a second video recorder, a decoder, a satellite receiver or a CD-i player.

- If the external unit transmits a control signal, this is recognized by the video recorder and this switches automatically to the view mode.
  You can switch the view mode on and off with the **MONITOR** button.
- Even when the video recorder is switched off, the Scart connection between the TV set and the external unit is maintained.

> Notes:
> * If the programme position "E1" or "E2" is selected, the video recorder cannot switch in the view mode. This also applies for programme positions with activated decoder function.
> * This function is only possible if the TV set is equipped for it and a Scart cable is used for the connection.

The TV monitor function

Pressing the **MONITOR** button switches the TV set to the "AV" (= **A**udio/**V**ideo input) programme position. This is useful if you wish to monitor a "running" recording on the picture screen (monitor) of your TV set. For this, the video recorder must be switched on. The video recorder's display indicates briefly "VCR MON".
A further pressure on the same button switches the monitor function off. The video recorder's display indicates briefly "TV MON".

> Notes:
> * The monitor function is **only** possible if the TV set is equipped for it and a Scart cable is used for the connection.
> * During playback, the **MONITOR** button has no function.

Switching between VCR 1 and VCR 2

This function is very useful if you have two video recorders operating with the same remote control code. So that you always control the "right" video recorder, you simply change the remote control code of this recoder and of this remote control handset.

❶ Switch on the TV set and select the programme position intended for the video recorder.

❷ Press the **ATS** button on the video recorder. The OSD page "INSTALLATION MENU" appears on the picture screen.

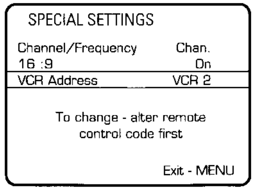
❸ Select the option "Special settings". Confirm with the **▶** button.

❹ The OSD page "SPECIAL SETTINGS" appears on the picture screen.

❺ Select the option "VCR Address". On the picture screen appears the message "To change – alter remote control code first".

❻ Press **simultaneously** the numeric button **2** and the **OK** button on the remote control.
The code of the remote control is changed.
To undo the change, press the numeric button **1** and the **OK** button.

❼ Point the remote control at the video recorder and press **any** button (e.g. **STOP ■**) button on the remote control. The "new" remote control code is sent to the video recorder. In the OSD page appears the indication "VCR2".
The code of the video recorder is also changed.



SPECIAL SETTINGS

Channel/Frequency	Chan.
16 :9	On
VCR Address	VCR 2

To change - alter remote control code first

Exit - MENU

❽ Complete the setting by presing the button **MENU** twice.

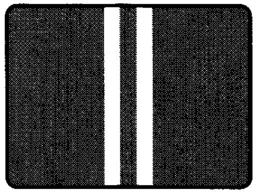
Playback using the aerial cable

If you do not wish to use a scart cable, you must use the **aerial cable already connected** to play from the video recorder.

❶ Switch on the TV set and select the channel number used for video playback. (This is explained in the operating instructions that accompany your TV set).

❷ Press the video-recorder buttons EJECT ▲ and PLAY ▶ simultaneously.
The message 'MODULATOR' and 'C36' or '591' will appear on the video-recorder display.

❸ You must now enter and store this channel number or frequency (in MHz) in the TV set.
A 'test picture' appears on the TV screen to indicate that the video recorder is transmitting.



Please consult your TV operating instructions for details on setting and storing the right channel or frequency for your TV set.

Note:
* Check the sound and picture quality of TV reception when playing from the video recorder. If necessary, optimise the picture, colour and sound by resetting the TV channel.

Information: The UHF-36 TV channel is occupied by your video recorder. It is, however, possible that this channel has been assigned to a different TV station at your reception point. Where this happens, i.e. when one or more TV stations is/are received, the picture quality of TV programmes is reduced. If this happens, proceed as follows:

❹ Check whether all TV channels function exactly as they did before.
If the picture quality of one or more TV channels has disimproved, switch off the video recorder for checking purposes. Check all the TV set's channels again.

❺ If picture interference only occurs when the video recorder is switched on, you must search for a 'free' video-recorder channel.

❻ Press the video-recorder buttons EJECT ▲ and PLAY ▶ simultaneously.

❼ Press the video-recorder button FOLLOW TV. The video recorder searches for a 'free' channel. The message 'MODULATOR' and e.g. 'C44' or '655' appears on the video-recorder display.
Store the setting by pressing the button OK.

❽ Reset the TV to the video recorder (Step ❸).

❾ If the result is unsatisfactory, you can also enter the channel number or frequency manually.

❿ Search for a free channel on your TV set (screen only flickers).

⓫ Press the video-recorder buttons EJECT ▲ and PLAY ▶ simultaneously.
Using the buttons ▼ or ▲ or the digit buttons 0 – 9, enter the 'new' channel number or frequency of your TV set. You will see the test picture.
Store the setting by pressing the button OK.

⓬ Check all channels on the TV set again. Repeat the setting (steps ❿ and ⓫) until such time as you can no longer detect a difference in the picture between when the video recorder is switched on and when it is off.

⓭ Switch off the video recorder by pressing the button LOW POWER ⏻.

Note:
* If you interrupted the setting described in Chapter 2 'INSTALLATION', continue with initial installation.

Switching the built-in modulator on and off

In the previous section, possible TV reception inteference was discussed. If picture/sound interference **can not be eliminated** using the methods mentioned, the built-in modulator can be switched off. "Playback via the aerial cable" is **no longer possible** when the modulator is switched off.

❶ Press the buttons EJECT ▲ and PLAY ▶ on the video recorder simultaneously.

❷ Press the remote control button ▶ **for more than five seconds.**
A message, e.g. "MODUL", appears in the video recorder display.

❸ Press the remote control button ▶ again **for more than five seconds.**
A message, e.g. "MODUL OFF", appears in the video recorder display.

❹ Store the setting by pressing the button OK.

Note:
* If your TV set has the "Easy Link" function, and the TV set and video recorder (scart socket 1 EXTERNAL / EURO-AV 1) are connected with the special scart cable supplied, the modulator is automatically switched off.

Remote control of TV sets

This remote control is equipped to deal with several companie specific remote control codes for TV sets. Using the appropriate **code digit** and the **TV** button block, the volume can be adjusted, the TV sound can be switched to 'mute', the programme number selected and the TV set switched off.

TV ◢ + / –	TV volume +/-
TV 🔇	switch TV sound on/off
TV ⏻	switch off TV
TV P + / –	select TV programme number +/-

Note:
* Perfect functioning for all models can not be guaranteed in the case of Panasonic, Sony, Radiola and Schneider TV sets.
* If the selected code does not function for your TV set, or if you can not find the manufacturer of your TV in the list, you can go through all the codes one by one.

❶ Hold the remote control towards the TV set.

❷ Press the appropriate TV button and digit button **simultaneously**.

❸ Switch off your TV set.
The "new" remote contol code is now loaded by the TV set.

Here is a list of a few manufacturers:

Code digit	**TV manufacturer**
0	Philips, Radiola (F), Schneider (F),
1	Grundig
2	Panasonic
3	Panasonic
4	Sony

Dismantling Instructions

General guidelines for dismantling the housing components, the electronics and the drive.

Always disconnect from mains before dismantling or assembly.

Due to supply voltages (hot circuit) on the input side of the switched-mode power supply, an isolating transformer must be used to operate the unit.

The drive or the drive - motherboard combination may not be lifted by holding the cross struts of the lift!

To detect power supply faults, we recommend the use of a variable transformer.
After assembling the unit, check for the earthing screw (M) on the underside of the housing.

In mode 10 of the service test program, the set also functions without drive. (Activate by pressing STOP on the remote control and PLAY on the set, followed by SELECT, input of the mode no., confirmation with SELECT). In this mode, the signal flow can for instance be followed up to the socket of the scanner.

Teletext sets are also operational with the Teletext board removed. After a Power-On Reset, the control microprocessor automatically detects whether the Teletext board is plugged in or not.

S-VHS sets have a special mode in which the set can be operated without the S-VHS PCB plate or drive. In this case the video signal on the In/Out print is connected directly from the Frontend to the output. To call up the function in the service test program, select mode no. 12.

1. Housing cover (Fig. 1,2)

- Remove screws A,B,C and D with Torx screwdriver
- Push centre of housing cover sides on underside approx. 1 cm outwards and lift the housing cover back over the three latch positions.
- Move cover up at least 4 cm.
- Remove housing cover.
  Assemble in reverse order.

2. Base plate (Fig. 3)

Preparation:

Remove housing cover as described in section 1.

- Turn the set upside down
- Unscrew the four support feet.
- The base plate can be lifted after unlocking the nine snap hooks (S1-S9) from left to right.

3. Front panel (Fig. 4)

Preparation:

Remove housing cover as described in section 1.

- Push both snap holders (P1) outwards and tilt panel top forward up to stop (approx. 3mm).
- Then release both snap hooks on the top (P2).
- Finally, release the three snap hooks (P3) on the underside and remove front panel by pulling it forward.

Installation:

- Insert front panel parallel to the operating PCB until snap hooks engage.
- Connect lift flap lever to guide of lift flap.

Important!

- Check whether all snap hooks are engaged!

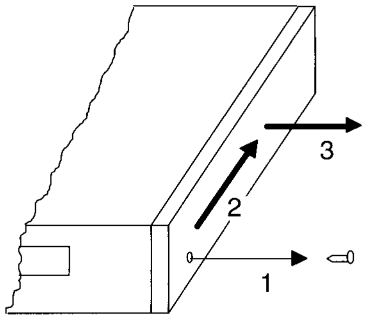


Fig. 1

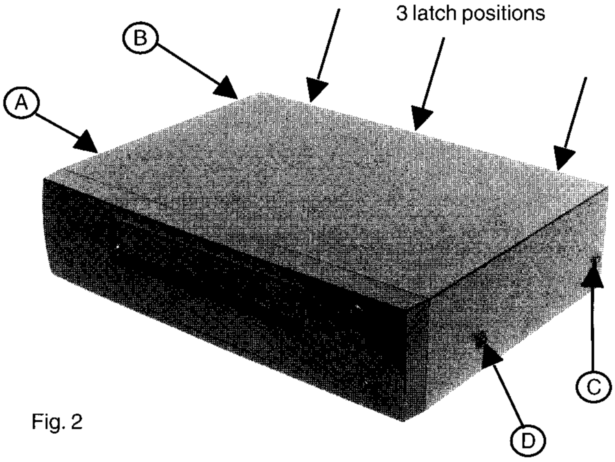


Fig. 2

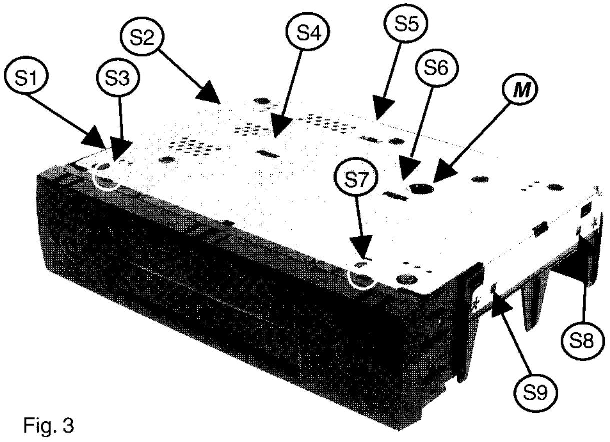


Fig. 3

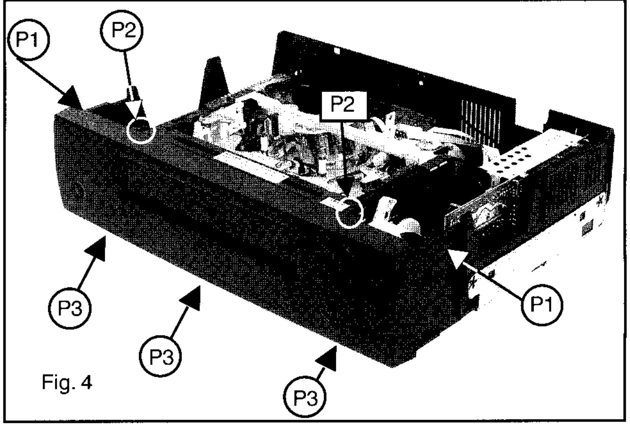


Fig. 4

4. Display Control - PDC (Fig. 5)

Preparation:

- Remove housing cover as described in section 1.
- Remove front panel as described in section 3.

Depending on the model, the operating print is either arranged in the set frame or screwed into the front panel.

- By releasing the four snap hooks D3,D4 (side) and D1,D2 (top) below the drive position, the operating PCB can be taken out of its position.
- When changing the operating PCB, first undo the motherboard cable connection.

5. Dismantling the motherboard-drive combination

Preparation:

Remove housing cover as described in section 1.
Remove front panel as described in section 3.

- Remove 4 holding screws (F) from the motherboard (Fig. 6).
- Push lift back by 5 cm after unlocking both lift stops.
- Undo the three drive screws (G), (Fig. 6).
- Carefully undo cable (K) between the motherboard and operating PCB (Fig. 5).
- Release the snap hooks of the power supply (1) (Fig. 6) and lift power supply slightly.
- Turn the unit upside down (Fig.3).
- Remove the earthing screw (M), (Fig. 3).
- Release snap hook (2) by pushing the snap hook downwards and lift up the frame.
- Release the snap hooks (3) by pushing the snap hook downwards and lift the frame (Fig. 6).
- Now the frame can be carefully lifted off.
- Turn the motherboard-drive combination and place it in the service position (Fig. 7) if necessary. The set can be operated in this position.
- Reconnect the cable between the operating PCB and the motherboard.

Service position of the motherboard:

Insert the motherboard into the guiding slot on the right internal side of the frame. In this position the set is fully operational.

Caution: In order to avoid short circuits between the Teletext board and the power supply, the plastic holder of the TXT board must always be installed or the TXT board must be disconnected (the set also functions without the TXT component)

Assembling:

- Position on an even surface
- Hold the drive on the side of the lift and insert the motherboard/ drive into the frame.
- Check whether the power supply and Scart socket positions are correct.
- Check if all motherboard snap hooks are engaged!
- Turn the unit upside down and fix the ground screw (M)!
- Fix screws (F), if applicable (Fig. 6).
- Fix the drive screws (G) (Fig.6).
- Reconnect the cables.

Important!

For carrying out electrical adjustments, or to evaluate the picture quality, the earthing screw (M) (Fig. 3) must be present (ground connection for the head amplifier).

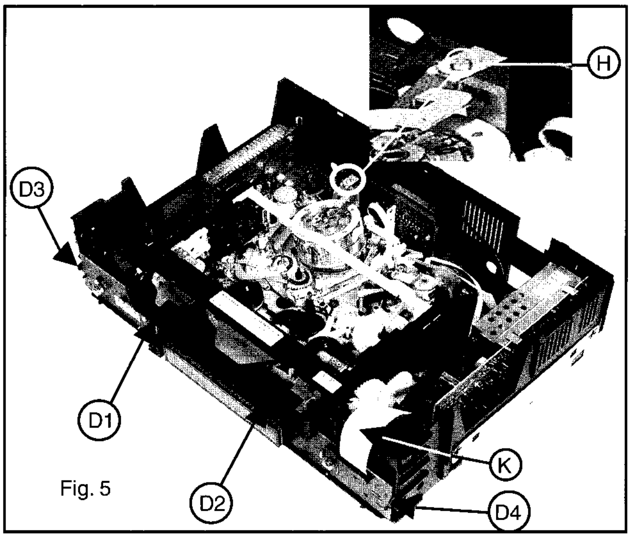


Fig. 5

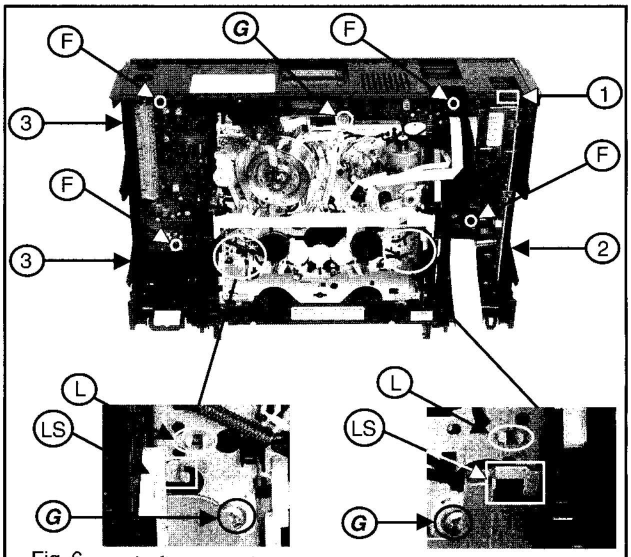


Fig. 6 Left segment Right segment

Service position

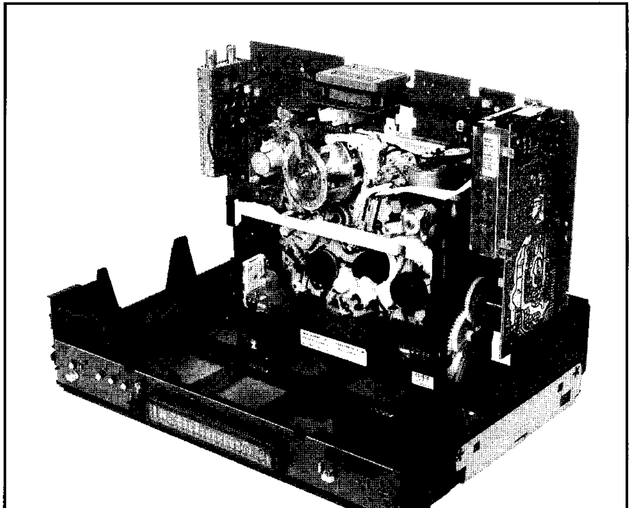


Fig. 7

6. Dismantling the drive

Preparation:

Remove housing cover as described in section 1.
Remove front panel as described in section 3.

- Position set upside down.
- Undo earthing screw of drive M (Fig. 3).
- Return unit to initial position.
- Push lift back by 5 cm after unlocking both lift stops.
- Undo the three drive screws G (Fig. 6).
- Position lift up to the stop in the 'Eject' position.
- Undo screw H with Torx screwdriver 8. (Fig.5)
- Carefully undo all cable connections to the motherboard.
- Slightly lift the left rear side of the drive to undo the plug-in connection.
- Loosen both snap hooks with pliers (L) and lift up the drive around the snap hooks (Fig. 6).
- The drive can now be released from the motherboard (Fig. 8).

Important!

Push back the shielding of the cable to the scanner nearby the screw (H) approx. 1cm. (Fig.4).

Assemble in reverse order.

Important!

Push back the shielding of the cable to the scanner nearby the screw (H) approx. 1cm. (Fig.4).
Position drive parallel to motherboard on left guiding pin of frame.
Check if all snap holders are engaged.

Remove drive

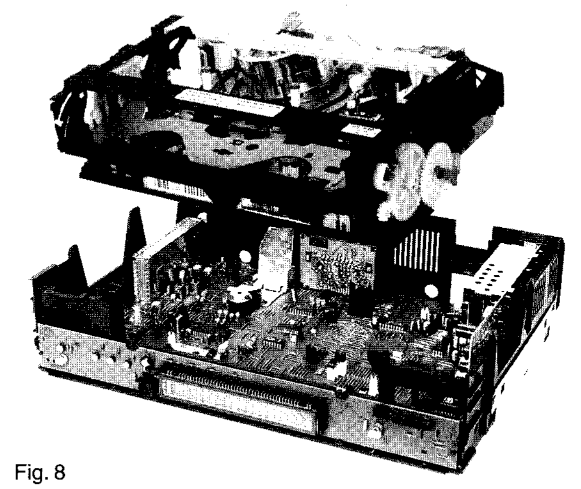


Fig. 8

7. S-VHS PCBs

In mode 12, the set is operational without S-VHS board and drive (the video signal is connected through from the Frontend to the output sockets).

Service position:

- After undoing both screws holding the board supports on the motherboard, the S-VHS boards can be removed.
- Remove Transcoder board from the S-VHS board and connect using adapter PCBs.
- Replace flexible 18-pin cable 1526 by longer cable contained in the service kit.
- Install the two board holders of the VHS - board in the adapter PCB.
- Plug in the S-VHS board in the motherboard by means of the adapter (fig 9.)

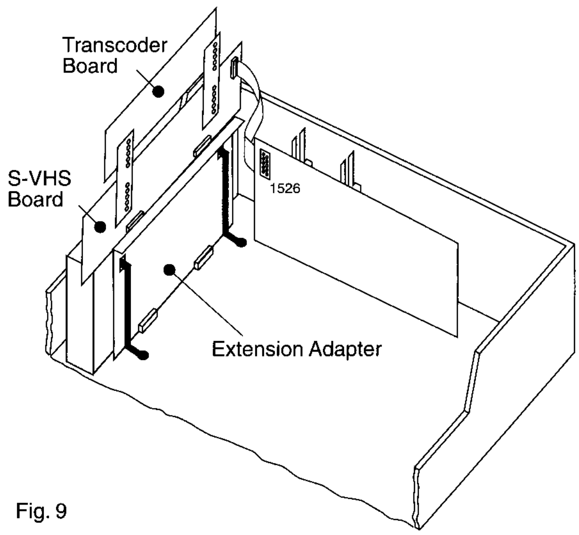


Fig. 9

Servicing of SMDs (Surface Mounted Devices)

1. General cautions on handling and storage.

- Oxidation on the SMDs terminals results in poor soldering. Do not handle SMDs with bare hands.
- Avoid for storage places that are sensitive to oxidation such as places with sulfur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity. As a result the capacitance or resistance value of the SMDs may be affected.
- Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

2. Removal of SMDs

- Heat the solder (for 2-3 seconds) at each terminal of the chip. Small components can, by means of litz wire and a limited horizontal force, be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 1A) or
- While holding the SMD with a pair of tweezers take it off gently using the soldering iron's heat applied to each terminal (see Fig. 1B).
- Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 1C).

Caution on removal:

- When handling the soldering iron, use suitable pressure and be careful.
- When removing the chip, do not use undue force with the pair of tweezers.
- The soldering iron to be used (approx. 30 W), must preferably be provided with a thermal control (soldering temperature about 225 to 250°C).
- The chip, once removed, must **never** be used again.

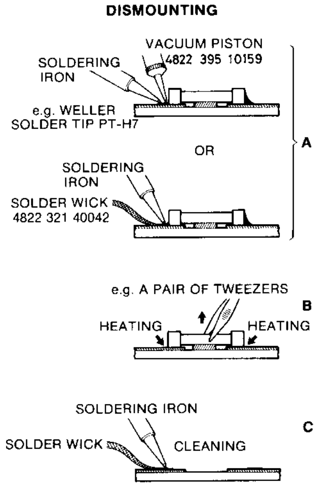

DISMOUNTING
VACUUM PISTON
4822 395 10159
SOLDERING IRON
e.g. WELLER SOLDER TIP PT-H7
OR
SOLDERING IRON
SOLDER WICK 4822 321 40042
A
e.g. A PAIR OF TWEEZERS
HEATING
HEATING
B
SOLDERING IRON
SOLDER WICK
CLEANING
C

Fig. 1

3. Attachment of SMDs

- Locate the SMD on the solder lands by means of tweezers and solder the component at one side. Ensure that the component is positioned well on the solder lands (see Fig. 2A).
- Next complete the soldering of the terminals of the component (see Fig. 2B).

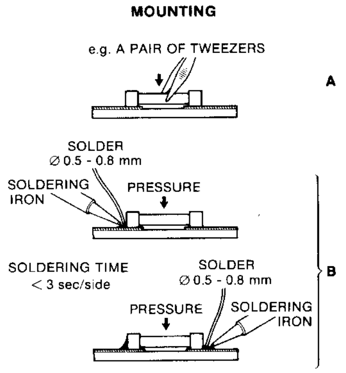

MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER
∅ 0.5 - 0.8 mm
SOLDERING IRON
PRESSURE
SOLDERING TIME
< 3 sec/side
SOLDER
∅ 0.5 - 0.8 mm
PRESSURE
SOLDERING IRON
B

Fig. 2

Caution on attachment:

- When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering must be as quick as possible; care must be taken to avoid damage to the terminals and the body itself.
- Keep the SMD's body in contact with the printed board when soldering.
- The soldering iron to be used (approx. 30 W) must preferably be provided with a thermal control (soldering temperature about 225 to 250°C).
- Soldering should not be done outside the solder land.
- Soldering flux (of rosin) may be used but should not be acidic.
- After soldering, let the SMD cool down gradually at room temperature.
- The quantity of solder must be proportional with the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 3).

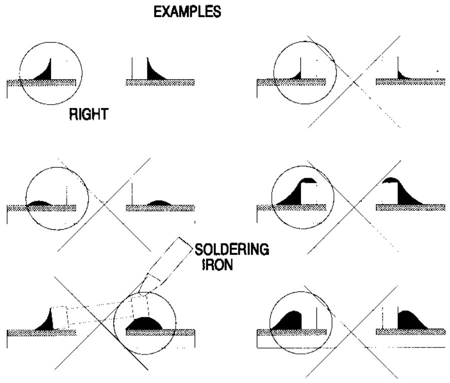
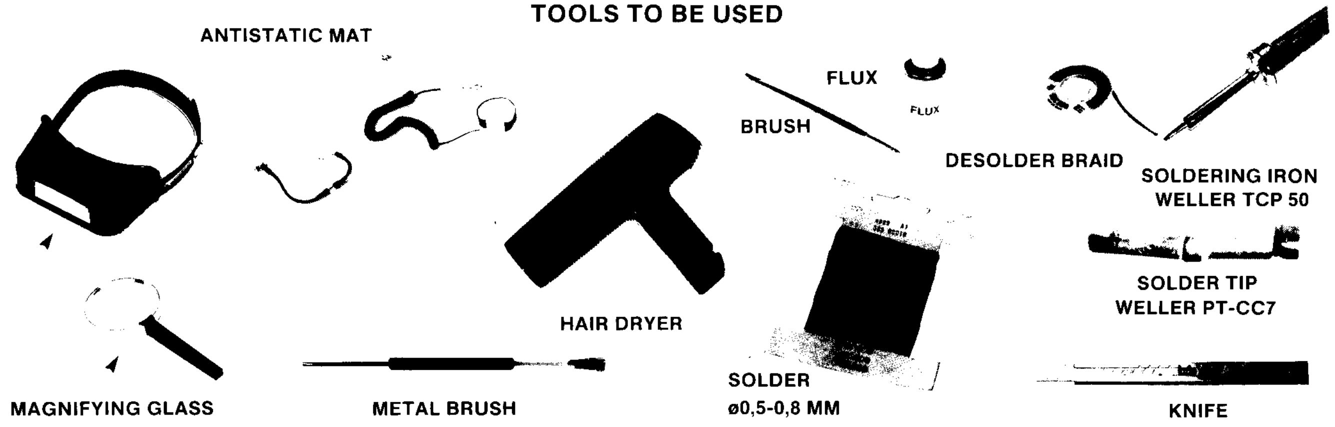

EXAMPLES
RIGHT
SOLDERING IRON

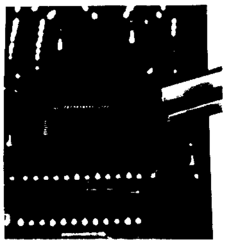
Fig. 3

Flatpack replacement

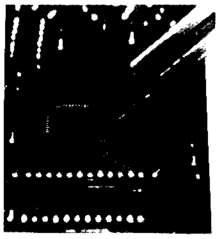
TOOLS TO BE USED


ANTISTATIC MAT
FLUX
BRUSH
FLUX
DESOLDER BRAID
SOLDERING IRON
WELLER TCP 50
SOLDER TIP
WELLER PT-CC7
HAIR DRYER
MAGNIFYING GLASS
METAL BRUSH
SOLDER
ø0,5-0,8 MM
KNIFE

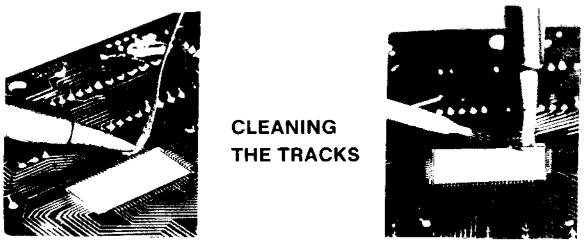
DISMOUNTING



CUTTING
THE LEADS

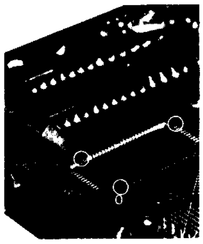


WRONG
TRACKS WILL
BE DAMAGED

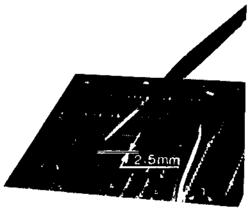


CLEANING
THE TRACKS

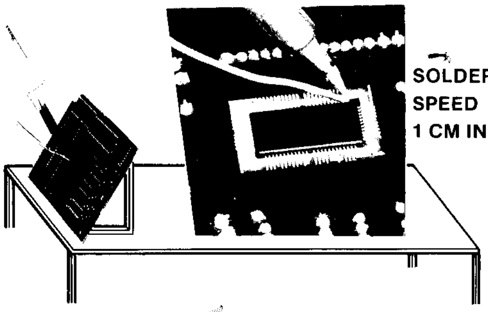
MOUNTING



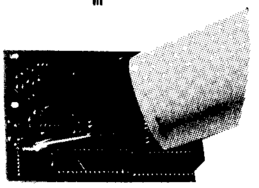
FIXING IC
AT THE CORNERS



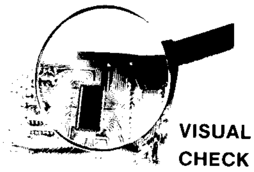
APPLYING FLUX



SOLDERING:
SPEED
1 CM IN 5 SEC.

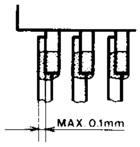


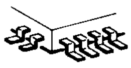
DRYING



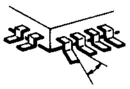
VISUAL
CHECK

ALIGNING THE LEADS

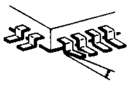




RIGHT

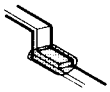


WRONG

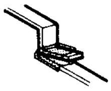


WRONG

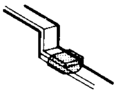
SOLDERING



RIGHT



WRONG



WRONG

Tools for error diagnosis

Erasing the EEPROM

- Disconnect from mains
- Press and hold down the Standby key, reconnect to mains and keep the Standby key depressed until the display illumination is switched off (approx. 8 sec.)

All EEPROM data will then be erased and initialised (timer and transmitter channels). The internal processor Ram is also erased, but the option codes, deck parameters, operating hours counter, fast finder and adjustment values are maintained.

After changing the EEPROM

the following steps must be carried out:

Step 40: Option code - entry
Step 41: Guide channels
Step 51: Setting the gap positions
Step 52: 'Studio Picture control´ adjustment
Step 54: ATS adjustment
Step 55: Stereo dec. coarse tuning
Step 56: Stereo dec. fine tuning
Step 58: Audio linear playback level

Service test program

1 Introduction

The software program for the control, deck and operating microprocessors includes a service test program. It is divided into the following steps, with the following 'modes´:

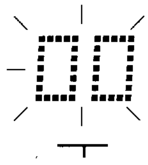
Step 00: Display of the mask version number
Step 01: Inspection of the drive positions
Step 02: Display of the deck - error codes
Step 03: Deck - sensors and manual tracking
Step 04: Display of operating hours counter
Step 05: Display of bus communication error
Step 10: Drive condition - dummy mode
Step 12: Operation without S-VHS board (for S-VHS only!) and without drive
Step 40: Options code input
Step 41: 'Guide channels´ change
Step 50: X value setting
Step 51: Setting the gap positions
Step 52: 'Studio Picture control´ adjustment
Step 54: ATS adjustment
Step 55: Stereo dec. coarse tuning
Step 56: Stereo dec. fine tuning
Step 57: Follow Me
Step 58: Test tone playback level
Step 60: Audio 1.4/1.8 MHz
Step 61: Tone envelope adjustment (THK)
Step 98: Display test
Step 99: Clock frequency output

In the service test program, all drive functions (apart from the picture search!) can be carried out, with the exception of the channel search and channel change mode. The program position set before entering the service test program is maintained.

2 Activating the service test program

Press and hold down the STOP key on the remote control. Then press the PLAY key on the recorder and keep it depressed for at least 5 sec. The STOP key on the remote control may be released whilst the PLAY key on the recorder is depressed.
After calling up the service test programme, Step 00 is automatically displayed with the mode mask version number!

By pressing the SELECT key on the remote control, all step modes may be selected or left and the step number currently selected with SELECT appears and flashes (⁝'⁝).



Step

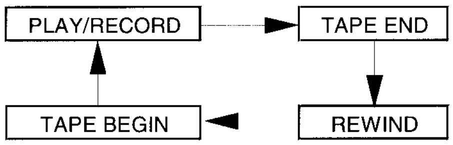
SELECT key on the remote control whilst the Step is flashing, the corresponding mode can be entered or left.
If a step is selected to which no mode is assigned, the displays shows - - and flashes.

To leave the service program, press the STAND-BY key or disconnect recorder from mains.

3 Service mode functions

Endurance test

In the service test program, the recorder can be endurance tested. For this, use a cassette and activate "PLAY" or "REC". The functions are then repeated continuously. In RECORD, the recorder does not move to EJECT at the tape end, but to REWIND, after which it starts RECORD again. This test serves to detect intermittent faults. The last error is stored in the EEPROM. (The fault remains stored even after a power failure.)
The endurance test is ended by pressing STOP or leaving the service test program.

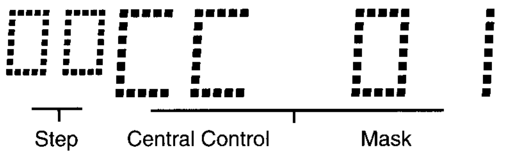


4 Description of steps:

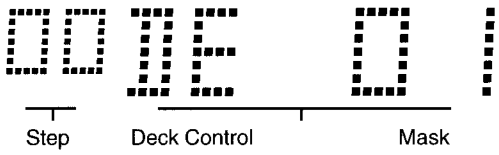
Step 00: Display of mask version numbers

After activating the service test program, Step 00 with the mode mask version number is automatically displayed.

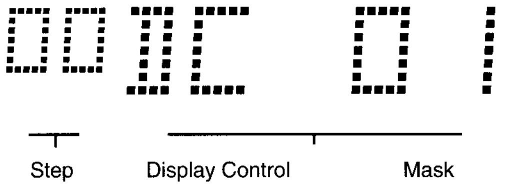
a) After calling up the service test programme, the control microprocessor is displayed,



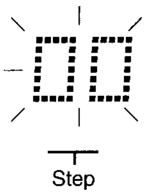
after pressing the "Up" or "Down" key,
b) the deck microprocessor is displayed



and after pressing the "Up" or "Down" key again
c) the operating microprocessor is displayed.



This mode can be left again by pressing the "SELECT" key on the remote control. The currently selected position number appears and flashes on the display.



A step between 00 and 99 can now be selected.

Step 01: Checking the drive positions

By calling up Step 01, the drive position appears on the display.
The FTA signal from the light barriers controlling the speed of the threading motor is used to check the drive condition.
The drive position is shown as a 3-digit decimal number by counting the FTA pulses on the display.

(e.g. 07 = Eject)

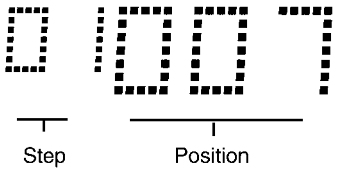
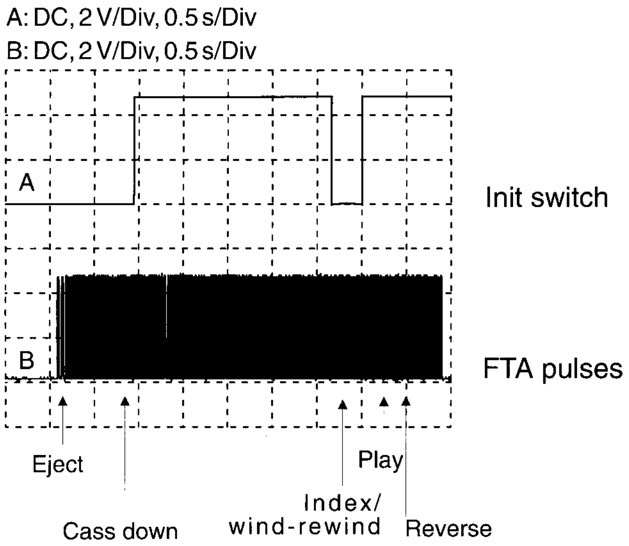


Table of drive positions:

Status	**Position (FTA dec.)**	**Display**
Eject	7 +2/-2	007
Wind/Rewind	191 +0/-2	191
Stop	200 +4/-4	200
Play (Pause)	211 +4/-4	211 [With SWING SEARCH]
	213 +4/-4	213 [Without SWING SEARCH]
Reverse	237 +2/-0	237

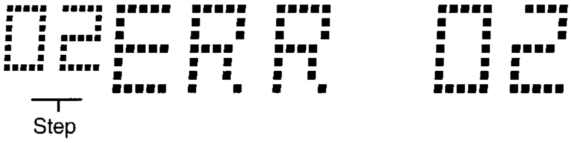
Function of the Init switch:

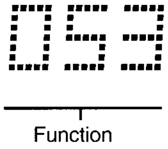
The diagram shows the function of the Init switch, depending on the position of the drive. The number of FTA pulses is important for the position of the drive.



Step 02: Display of the deck error code

By calling up Step 02, the deck error code is shown on the display .





(e.g.: Error 2 = Capstan fault)

Error table:

0	no error
1	threading error
2	no capstan pulses
3	tape broken
4	no pulses left reel
5	no pulses right reel
6	head motor error

The bottom 3 digits show the deck fault condition:
(e.g.: 053 = for Play)

Function table:

012	Standby	114	VISS write	211	Slowmotion 1/24
014	Autotracking	115	Viss erase	212	" " 1/14
031	Play-3	125	Tuner - Stopout	215	" " 1/7
034	Slow_reverse	126	Auto Remain Funct.	216	" " 1/2
041	Still Picture	130	ATTS Function	217	" " -1/24
042	Fast	168	Frame+	218	" " -1/14
044	Play-9	169	Frame-	219	" " -1/7
045	Eject	170	Play-11	220	" " -1/2
046	Play9	171	Play-7	222	Edit Record
047	Play-1	172	Play-5	223	Align of Gap
048	Pause	173	Play5	238	Pause
050	Rewind	174	Play7	239	SPC align
052	Wind	175	Play11	246	Edit Pause
053	Play	196	Tuner - Eject	247	Slow motion 1/10
054	Stop out	197	Standby Eject	248	" " 1/18
055	Record	199	Audio Dubbing	249	" " -1/10
112	Index next	202	Audio Dubb. Pause	250	" " -1/18
113	Index previous	206	Reset Tapecounter	253	Key Released

The error code can be reset with the CLEAR key.

Checking the drive functions:

Threading and unthreading time
The signal of the photoelectric barrier which controls the revolutions of the threading motor is used as a reference for the threading and unthreading time.

Stopping of the left or right winding disk
The tacho signals of the left (WTL) and right (WTR) winding disks are used as a control reference.

Stopping of the axial head motor
This is monitored with the PG/FG signal. The signal is discharged from the e.m.f. of the non-conducting spools of the axial head motor, showing the position of the head cylinder.

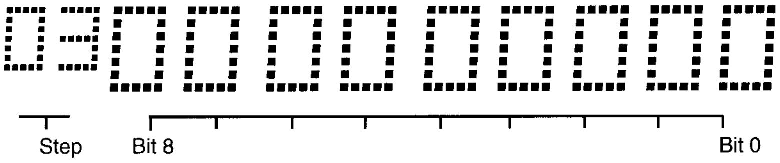
Capstan motor fault
This is monitored with the capstan tacho signal.

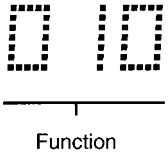
If one of the above sensor signals is not available, the recorder tries to put the lift in the “EJECT” position.

Explanation of deck error code and deck error status
The last error code is stored and remains in the EEPROM, even if the recorder is disconnected from the mains.
The error code can be erased by pushing the CLEAR key on the remote control during the service mode.

Step 03: Deck sensors and manual tracking

By activating Step 03, the deck sensors will be displayed in one digit as either 1 or 0.



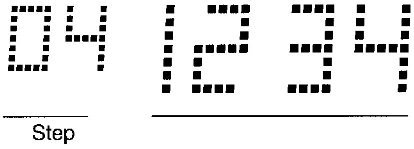


Bit 0 .... Tape end
Bit 1 .... Tape start
Bit 2 .... Record protection switch
Bit 3 .... Tacho right
Bit 4 .... Tacho left
Bit 5 .... Init switch
Bit 6 .... Threading tacho
Bit 7 .... S-VHS switch (only for S-VHS!)
Bit 8 .... —

In the service test program, the tracking is always set to the centre position. Only in this step can the value for the required tape operation setting be changed with the UP / DOWN keys.
After leaving the mode by pressing the SELECT key, the tracking value always resets itself to the centre position and cannot be changed.

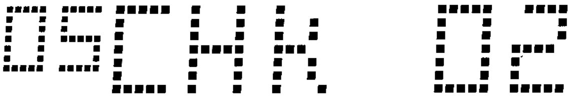
Step 04: Display of the operating hours counter:

By activating Step 04, the operating hours counter shows how many hours the head disk has turned. The hours are displayed as a 4-digit decimal number.



Step 05: Bus communication error display and other detectable errors

By activating Step 05, the error code of the malfunctioning or missing IIC - component is displayed.



By pressing the DOWN key, all error codes can be selected in succession. If a version does not contain the IIC bus component, this is also shown as an error.

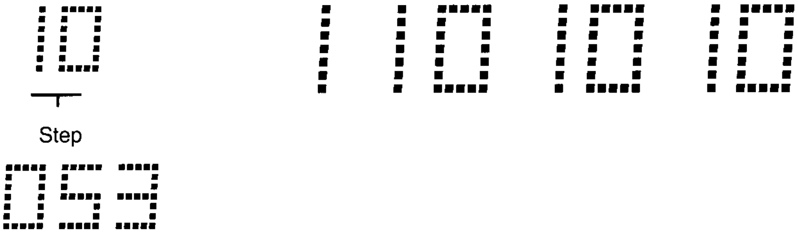
Error code table:

Code	Description	Pos.
00	no error	
01	Tuner	1750 (TM)
02	Modulator	1750 (TM)
05	VPS/PDC	7720 (VP)
06	Teletext	7140 (VT)
07	Audio Processor	7400 (AU)
08	Video Matrix	7200 (IO)
09	NICAM	7200 (FE)
10	Stereo Decoder	7100 (FE)

If the EEPROMs 7024, 7025 are defective the main controller does not start up and the display remains dark (there is acitivity on the IIC bus)
If the audio processor does not recognise the head change-over pulse HI-S (HP2), the display shows "CARR ERROR".

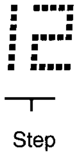
Step 10: Operation without drive - dummy mode

Enter the mode by pressing the SELECT key. All motors are then switched off and the sensors will be ignored by the deck microprocessor. The drive can now be dismantled from the motherboard (see dismantling instruction). **Only install drive with the recorder disconnected from the mains!** For signal tracking, the recorder can be set to all drive conditions, i.e. signal electronic, audio and IO processing are switched to the corresponding operating mode.



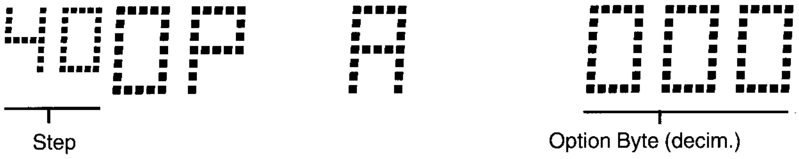
Step 12: Operation without S-VHS board (for S-VHS only!) and without drive

Dismantle S-VHS hardware and drive; connect set to mains. This step connects the front end signals to the E1 socket. Leave the step by a mains reset.

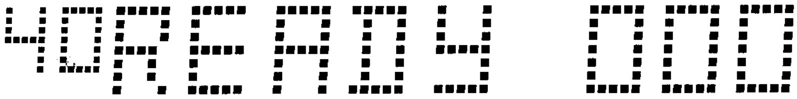


Step 40: Option code input

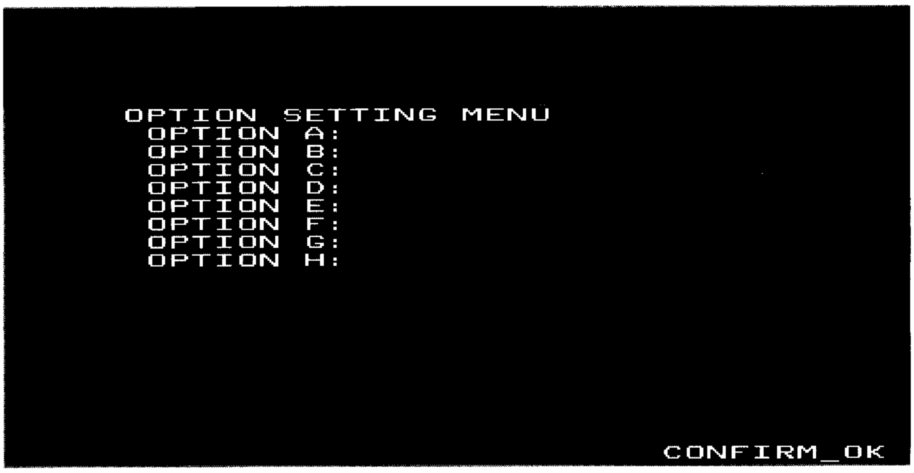
If, as part of repair work, a new EEPROM is installed, it has to be initialised.
After activating Step 40, option A appears in the display.



The available options can be selected with the UP and DOWN keys.



By entering a 3-digit decimal code, the correct options (features) are set. The codes are listed on the type sign on the set. After pressing the "OK" key, the entered code is saved and "Ready" appears on the display for approx. 5 sec.



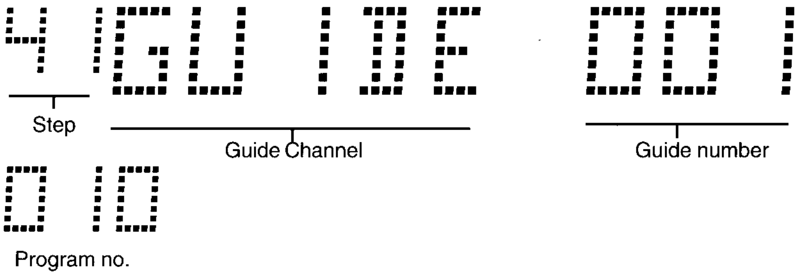
```
OPTION SETTING MENU
 OPTION A:
 OPTION B:
 OPTION C:
 OPTION D:
 OPTION E:
 OPTION F:
 OPTION G:
 OPTION H:

                                CONFIRM_OK
```

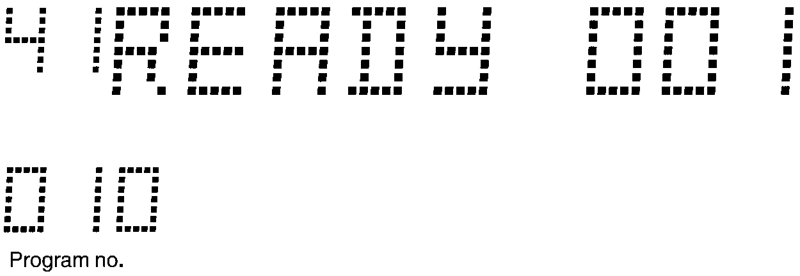
By using the "CLEAR" key on the remote control, incorrectly entered values can be cancelled.

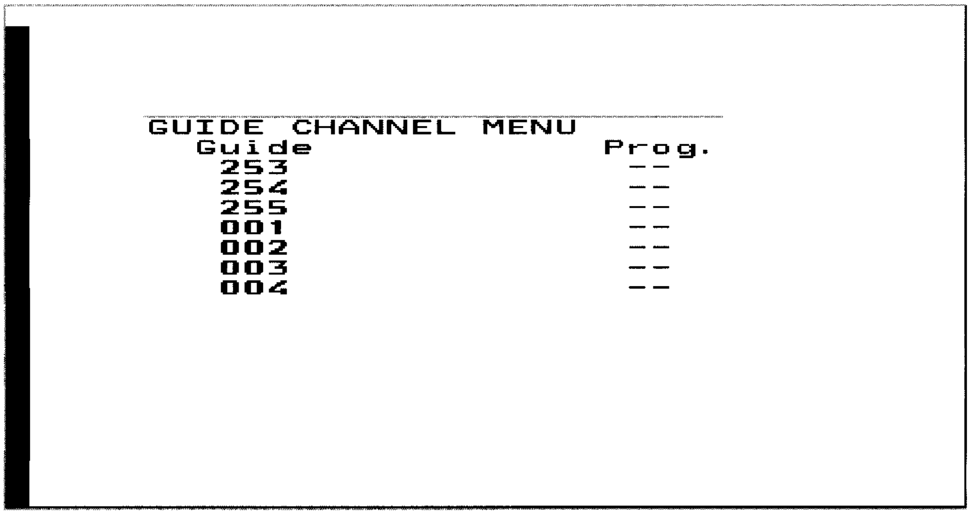
Step 41: ”Guide channel” changes (guide numbers)

After activating Step 41, guide channels can be assigned to a program number between 1 and 99. Select a guide channel between 001 and 255 with the UP or DOWN keys and enter a program number for the selected channel with the numerical keys.
More than one guide channel may be assigned to a program number.


4
GUIDE
001
Step
Guide Channel
Guide number
010
Program no.

The value can be erased at any time with the ”CLEAR” key and stored with the ”OK” key.


4
READY
001
010
Program no.



```
GUIDE CHANNEL MENU
    Guide               Prog.
      253                 --
      254                 --
      255                 --
      001                 --
      002                 --
      003                 --
      004                 --
```

Step 98: Display Test

After activating Step 98, all display sections are illuminated with half the brightness.

Engineer's remarks

Circuit descriptions

1. Power Supply PSM (PS)

Technical data:

Supply voltage	: 187 - 264 Vrms
Max. output	: 50 W
Switching frequency	: 100 kHz
Efficiency	: 78 % at max. output

Operational principle (blocking oscillator principle):

During the conductive phase of switching, transistor energy passes from the supply to the transformer. This energy is then passed on to the load during the blocking phase. Regulation is achieved by varying the switch-on time and the frequency of the drive waveform. The energy passed on in every cycle is regulated so that the Power Supply output voltages do not vary under changing load or with Mains input voltage variations. Integrated circuit [7020] has over all control of the PowerTransistor.

LOW STANDBY MODE: (PSM2/3/2B)
The Power Supply operates in Burst Mode. The power consumption is less than 1Watt. Only the 5VSTBY remains.

STAND BY MODE: (PSM2A/2AF/1/1B)
The Power Supply operates at a controlled low frequency of approx. 50 kHz. This minimises switching losses.

POINT OF REVERSAL:
At this point of the output characteristic, the transferred output will be at maximum.

OVERLOAD:
The power supply operates in Burst-Mode. The energy of every cycle is limited. In this case the Power Supply outputs will be low.

Circuit description:

The supply voltage is firstly filtered by the components around coil [5010], is then rectified by bridge rectifier [6050] and screened by capacitor [2070].
Electrolytic capacitor [2036] charges via [3050, 3052] and provides the initial start up voltage for the IC [7020]. After the start-up phase the Power Supply maintaining voltage is produced by transformer winding 4-3 and by Diode [6036].
During activation of the switching transistor, a current flows from the rectified supply voltage through the primary winding of the transformer, through Transistor [7040] and then through resistors [3048, 3046] to ground.
As the positive voltage at pin 9 of the transistor is constant (in this example), the current rises linearly, forming a ramp which is dependent on the supply voltage and the inductivity of the primary winding.
A magnetic field will then be formed in the transformer. This current represents a certain energy quantity. During this time, voltages will be produced on the secondary side of the Transfomer. These voltages will be polarised in such a way so that the secondary Diodes block. A voltage image of the primary current is then applied to the IC [7020] at pin 7 via resistors [3048, 3046, 3026], This image voltage is then checked and on reaching a certain value - dependent on the control voltage at pin 14 of the IC, Transistor [7040] will be switched off.
Once the switching transistor has switched off, no further energy will be transferred to the transformer. The transformer inductivity now attempts to keep the current which has flown through the transformer at a constant level (u=L*di/dt). The current decreases, di/dt becomes negative. Consequently the polarity of the voltages present on the transformer reverses, causing a current to flow through the secondary winding of the transformer, through the diodes, the *electrolytic capacitors and on to the load. This current is also ramp-*shaped, but decreasing (See fig. 1).
The circuit supply is controlled by changing the conductive phase of the switching transistor, so that either more or less energy is passed into the transformer from the supply. The control information stems from reference element [7074], this will compare the 5V to an internal reference voltage of 2,5V. The control information for 7074 passes via an optocoupier to pin 14 of [7020] for galvanic isolation. The IC [7020] compares this voltage to an internal reference. The resulting value changes the level at which the voltage at pin 7 of the IC (image of primary current) is compared. The voltage at pin 5 of the IC serves as fold-back control during overload conditions.
The maximum removable secondary output is determined by [3048, 3046]. At a certain voltage (normally 1V) at pin 7 of the IC the power supply will pass to the reversal point. The circuitry at pin 11 is optional. The start-up phase is carried out with shortened pulses using by using 2014, the switching frequency in this case will be outside the audible range. The secondary side of the Transformer produces seven voltages. These voltages are rectified by [6076, 6082, 6081, 6092, 6080, 6088, 6098 (Y6096)].

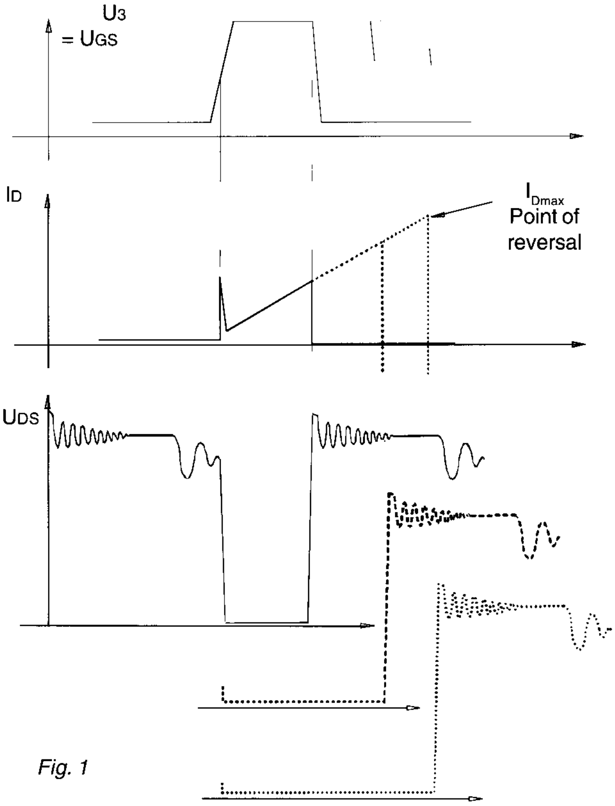


Fig. 1

The Display heating supply is an alternating current and is produced by transistors [7058, 7060]. Transistor [Y7090] switches the motor supply 8/17M.
(PSM2/3 only): Transistor [7050] together with resistor [3071], influences the control loop for the 5V supply voltage. This combination produces the effect of the 5V voltage [7020] being high (via the optocoupler[7070], which causes the IC to switch to BURST MODE (See 1.4 Nominal, overload and standby operation) . A high level on STBY (Pin 18 of pin strip [1519]) switches the power supply to LOW STANDBY MODE. The IC]7085] stabilizes the 5VSTBY voltage, which is unable to supply more than 1mA.

Description of start-up phase

After connection to the Mains supply the following voltages are produced. The start up sequence will now be described. (see Fig. 2).
At time t0: Vcc (pin 1) is presented with a half-wave charge via resistors [3050, 3052], the V_{cc} Start voltage. The current consumption is in this state is 0.3 mA (normal!). The internal reference voltage (V_{ref} IC 7010) will be activated when the Vcc Start voltage reaches approx 13V. The internal oscillator will now start up. The oscillator frequency is determined by the capacitor conected at *pin 10 of the I.C. (approx. 100 kHz) In the loaded state this can lead* to an increase of current consumption up to 17mA.
The voltage at pin 11 rises linearly (Soft Start). The IC will start up with shortened pulses until pin 11 has reached a voltage of 2.4V.
If V_{cc} falls below the limit V_{dis2} or if (through a fault in the regulation loop) V_{cc} rises to V_{ccprot} (typ. 16V) before the reversal point is reached, the start-up sequence will be stopped (pin 3 is disabled)

and the IC will be (V_{ref}) switched off . Vcc will rise by a half-wave charge. A new start-up cycle will then begin.

Nominal, overload and standby operation

After start-up, the IC [7020] lies inside the normal control range. The voltage at pin 14 is normally 2.5V. A secondary load rise will cause a increase in the switch-on time of the Transistor. As a consequence of the increase in load, the peak voltage value at pin 7 of the I.C (drain current image) will also increase. If the load further increases to a pre determined level, the overload amplifier inside the IC will reduce the pulse width to the so-called reversal point. (at typ. 1V on Pin7)
The IC supply voltage V_{cc} will behave in the same way as the secondary output voltages. Consequently V_{cc}, will also decreases with increasing load.
During this condition $V_{cc} < V_{dis1}$ (approx. 9V) the IC will change in to the so called Burst Mode (query operation). The fault power condition output will be low, as the interval between half-wave starts will be long. A reducing load will shorten the on transition time .If the load drops further at a certain threshold, the IC will switch the frequency back to approximatly 50 kHz (Standby mode) via pin 7 (depending on the connections at pins 12, 15).
This keeps any switching losses in the transistor to a minimum.

Start Up and Overvoltage protection:

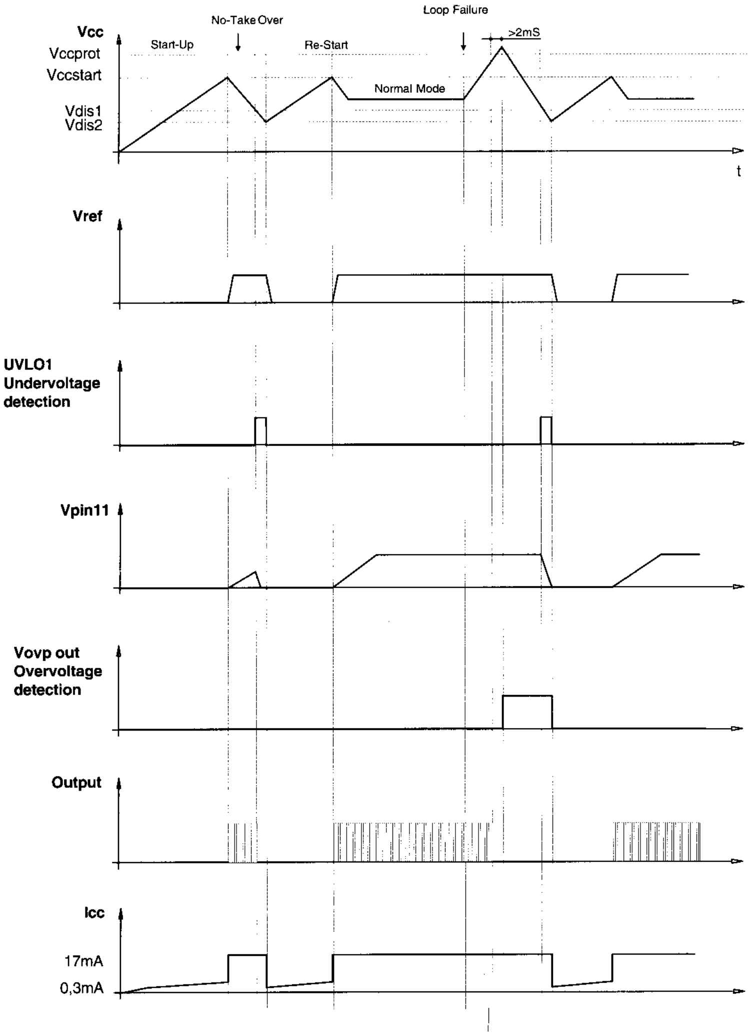


Bild 2

Over temperature

The IC [7020] has a built in over temperature sensor, blocking by the use of internal llogic the drive waveform if excessive IC temperatures are produced (typically 155°C). When the temperature has reduced the power supply will re start.

2. Front End (FE)

The front end serves to amplify and demodulate the tuner signal.
It also generates the FBAS and the LF signals:

- Mono
- Stereo - right; left
- Dual tone; tone 1; tone 2

PAL: The IF signal passes from the connector contact IF-IN [1624/10] to the dual surface wave filter [Y1030] (video and audio), where the video and audio signals will be separated.
Multistandard: The IF signal passes from the connector contact IF-IN [1624/10] to the surface wave filter [Y1010, Y1020, Y1030] (video and audio), where the video and audio signals will be separated.
The video signal is passed to pins -(1) and -(2), the audio signal to pins -(27) and -(28) of Y7050. Additional processing of the video and audio signals is also carried out by IC [7050].

2.1 Video processing

The video IF input signal is fed to pins 1 and 2 of [Y7050], the signal is then processed by the following blocks, a controlled wide-band amplifier, a synchronous demodulator (including active carrier regeneration) PLL, a video amplifier and the generation of regulated voltage for the tuner. The CVBS-signal is present at IC [7050-(18)].

PAL: Via an internal buffer stage IC [Y7050-(19), -(8)] and the Sound Trap [Y1110] the CVBS signal is passed to the module output (connector contact [1624-(5)], CVBS-HF).
Multistandard: Via the sound-trap filter [Y1090] and an internal buffer stage IC [Y750-(19), -(8)] the CVBS signal passes to an additional sound trap filter [Y1110] and a chroma amplification stage [7155, Y5159, 3159, Y2159] or to the sound trap filter [Y1100] and then to the output switch [Y7150] and the module output, connector contact [1624-(5)] (CVBS-HF) .

2.2 Audio processing

PAL: The audio IF signal passes from the surface wave filter [Y1030] to IC [7050-(27, 28)]; and then through a internal amplifier. It then passes through a converter [7050]. This converts the sound IF signal to a intercarrier signal (5.5/5.74 MHz). The intercarrier signal is then applied to IC [7050- (17)]. It passes from the IC [Y7050-(17)] via filters [Y1070] (5.5 MHZ), [Y1050] (5.74 MHz) to the FM-PLL demodulators [Y7050-(14), -(15)]. This is then followed by internal buffer amplifiers. The AF1(L) and AF2(R) signals will now be present at pins -(10) and -(11).
Multistandard: The sound IF-signal passes via an audio surface wave filter [Y1010, Y1020] to the audio input of IC [7050-(27, 28)], and via an internal regulation amplifier to a converter [7050]. This converts the sound IF signal to an intercarrier signal (5.5/5.74 MHz) for the FM-sound or directly to an audio-signal for AM-SOUND (standard L) [Y7050-(10)].

Mono

During mono broadcasts only pin 10 of IC [Y7050] will receive a signal. The evaluation circuit in the decoder IC [Y7100], recognises the MONO status and will inform the central controller IC [7300] of this via the I2C bus (pins 1/20), this will set the output selection switches in the IC [7570] to MONO mode. The audio signal will is now present at pins 11 / 12 of the IC. From these two connections the signal is then passed to the I/O switching circuit. (FEL,FER) FM recording. For linear audio recording the audio signal is passed to the audio linear circuit (FEMono) from IC [Y7050-(10)] via T [7143].

Stereo mode

During stereo broadcasts the signals are connected to IC [Y7050] at pins 10 and 11. The R signal (pilot signal amplitude modulated with 117 Hz) is connected to pin 11. The pilot signal passes via the pilot circuit (PAL: [Y2070, Y5070], Multistandard: [Y2130, Y5130] to IC [Y7100] pin 5 and then to the evaluation circuit. This circuit allows

the decoder to recognise the stereo status from the 117 Hz signal and hence informs the central controller by using thed LH2 (Longplay heads) to pins 11 and 9 where the 4 Signals are amplified. The HSC (SP/LP) signal passes on the correct signal at the amplifier outputs of [7600]. At SP HSC is Low. The FM signals of heads SH1 and SH2 are passed on. During LP operation HSC is High and the information from heads LH1 and LH2 is processed further. The HSC signal is passed to pin 21 of IC [7600] via IC [7649]. As the tape information can only be read by one head this means LH1 or LH2 during LP operation and SH1 or SH2 during SPsing the 274 Hz signal. The decoder will identify its status to the sequence controller via the I²C bus . Via the I²C bus both channels will then be electronically switched to pins 11 (tone1) and 12 (tone 2) and then finally once again by the via the I²C bus to the audio (AU) switching circuit.
FER=FRONT END RIGHT
FEL=FRONT END LEFT

3. PCB-Head amplifier (HC)

Operational overview

The Video head amplifier passes the image signals to the rotating transformers. The signals are then written to tape by the video heads or read out by the same.

3.1 Playback:

The mutual SHC and LHC points of the transferring coils are earthed by switches SW-SP and SW-LP (both in IC [7600]). Switches SW1-SP, SW2-SP, SW1-LP and SW2-LP (in IC [7600]) are open. For playback 2 heads are available for LP and SP. The FM information on the tape pass via SH1 and SH2 (Shortplay heads) to pins 6 and 4 of the video head amplifier [7600] and from LH1 and LH2 (Longplay heads) to pins 11 and 9 where the 4 Signals are amplified. The HSC (SP/LP) signal passes on the correct signal at the amplifier outputs of [7600]. At SP HSC is Low. The FM signals of heads SH1 and SH2 are passed on. During LP operation HSC is High and the information from heads LH1 and LH2 is processed further. The HSC signal is passed to pin 21 of IC [7600] via IC [7649]. As the tape information can only be read by one head this means LH1 or LH2 during LP operation and SH1 or SH2 during SP operation. The signal HP1 (pulse) IC [7600-20] switches to the reading head. The unregulated FM signal is passed to pin 19 of IC [7600] as FM UK, the regulated FM signal to pin 18 of IC [7600] as FM-CON.

3.2 Search operation:

The SP and LP signals are rectified in [7600] and compared in a comparator. This determines which head supplies the stronger signal. The comparator output (pin 23 of [7600] is passed on as ENVC signal to the deck controller 7085, providing the correct HP1 and HSC signals [7600] for the search operation. ENVC is High for SP signal > LP signal and Low for SP signal <LP signal. Using HSC and HP1, the strongest signal is applied to the output of [7600-(pin 19)], to receive an interference-free picture. The HSC is linked with the CSYNC (in IC [7649]) so that a switch-over can only be made at a line end.

3.3 Recording:

Via resistors [3610, 3611 and 3612] all signals FM>Bd, CH>Bd and SEC-FM (SP mode) are added, showing the relationship of FM>Bd to CH>Bd or FM>Bd to SEC-FM at -12 dB in the summing which is pin [7600/19]. This summing information signal passes at pin 1 into IC [7600], which passes the recording signal to the mutual point (SHC) of the SP head tranformers. Condensor [2616] determines a certain recording frequency for SP-mode. In LP-mode the signals are added via the resistors [3617, 3618, 3619] and then passed to IC [7600] at pin 27, which then passes the signal to the mutual line [LHC] of the head transformer. Condensor [2615] which determines the frequency response in LP-mode.

4. Luminance/Chrominance circuit (VS)

General:

During recording the 4.43 MHz colour signal is converted to 627 kHz with a beat frequency (5.06 MHz). The luminance signal is frequency modulated. During playback the 627 kHz colour signal returns to the original 4.43 MHz colour signal (beat frequency 5.06 MHz). It is then amplified, added to the modulated and dropout compensated luminance signal and passed to the IN/OUT circuit.

4.1 Luminance unit

4.1.1 EE operation

The FBAS input signal passes via pin 7 in IC [7320]. From here it passes through a servo amplifier (AGC), a clamping stage and a video amplifier. The signal is output at pin 11 of IC [7320], passes to an emitter follower (transistor [7335]) and is then passed to the IN/OUT circuit via resistor [3534].
The C-SYNC comes from pin 9 of IC [7320].The C-SYNC is gained from the FBAS-IN signal at pin 7 of IC [7320].
In IC [7320] the FBAS signal is filtered by a low pass filter before the AGC amplifier and then clamped. The C-SYNC is then separated and output at pin 9 of IC [7320]. (See 1.4 !)

4.1.2 Recording

The FBAS signal is passed from the IN/OUT circuit to pin 7 of IC [7320] and to the SECAM circuit. In IC [7320] the signal is regulated in the AGC stage. It is then clamped, low pass filtered (3.5 MHz) for chroma suppression and output from IC [7320] at pin 46. The Y signal is passed to an emitter follower (transistor [7300]) and then returned into the IC [7320] at pin 47, where it goes through a clamping stage, a DETAIL ENHANCER and the non-linear Emphasis providing non-linear lifting of high the frequencies. The following MAIN EMPHASIS lifts the high frequency parts of the BAS - signal linearly. This lifting is cancelled during playback. After the MAIN EMPHASIS the black and white values are amplitude limited (W/D CLIP). The signal is then FM modulated and output at pin 44 of IC [7320]. A band pass filter consisting of capacitors [2267, 2268, 2269, 2271, 2273] and inductors [5267, 5269] and [5273], limits the Y-FM range for the low frequency ranges (below 1.0 MHz) for non-interfered Chroma signals. The FM modulated signal (FM<BAND/FM T.T.) is then passed on to the head amplifier switching circuit (HC).
The Y-wrinting current is defined by the adjustable component [3479].

4.1.3 Playback

During playback the regulated FM signal from the tape (FM-CON) is branched after the transistor for luminance processing of SQPB and VHS.

VHS:

For VHS playback the FM signal is passed from the tape to a "Peaking circuit", forming a parallel and a serial oscillating circuit (capacitors [2157, 2159], inductivity [5157]). During serial resonance (5 MHz) the signal passes through unattenuated and during parallel resonance (9 MHz) it is blocked. The the group delay of this signal is corrected with transistor [7165], resistors [3365, 3367, 3369], capacitor [2167] and inductor [5167]. The signal is released from the 627-kHz chroma signal by a suction circuit [2175, 5175] and low pass filtered (capacitors [2181, 2179], inductivity [5179]).
The SEC-W signal switches transistor [7185]. If SEC-W is low, the transistor is conductive. Then the Y-FM signal will be passed to pin 43 of IC [7320]. For the playback of Secam-West recordings SEC-W is high so that transistor [7185] blocks. The signal now passes through a 1.1 MHz rejection filter (capacitor [2185], inductivity [5185]) for colour suppression and is only then passed to pin 43 of of IC [7320]. There the signal is passed to an AGC stage and checked by the Dropout Detector (DOC DET) for level dropouts, exceeding a certain value. If necessary, a pulse is transmitted to the dropout compensation switch (DOC). From here the signal passes through a limiter (DOUBLE LIMIT), a FM demodulator, a low pass (SUB LPF) and the main deemphasis (MAIN DEEMPH). The main deemphasis block the linear lifting of the high frequency is cancelled. At pin 46 the signal leaves the IC [7320]. At this stage the transistor [7280] switches between the VHS and SQPB demodulator identification lines. At pin 47 the signal is passed back into the IC [7320]. After

clamping, it is passed to a low pass filter (Y-LPF), only letting through luminance signals. Furthermore C-SYNC is taken from the signal and then output at pin 9 of IC [7320]. The BAS - signal from Y-LPF is passed to the output stage (ATT) for dropout compensation and then via pin 15 of IC [7320] to pin 7 of IC [7340]. The signal is delayed by one line and passed via pin 9 of IC [7340] to pin 13 of IC [7320]. After VCA amplification it is clamped and passed to the dropout switch. If dropout signals occur, these are replaced by the clean delayed signal by switching the dropout switch. Furthermore the undelayed and delayed BAS - signals are subtracted from one another in a differential amplifier and the resulting low frequency noise voltage is added in antiphase to the undelayed Y signal by an evaluation filter. The noise reduced BAS - signal passes through a non-linear deemphasis block (NL DEEMPH), cancelling non-linear lifting of the high frequencies, a filter suppressing high-frequency noise voltages (WHP) and a Picture Control. The central controller sends data corresponding to the required picture quality to the shift register [7370], switching the outputs (pins 4, 5, 13 and 14) accordingly. The output signals of the shift register are summed via resistors [3542, 3543, 3544, 3545] and added to the 2.5V, between resistors [3552] and [3523]. The thus generated control signal PIC_CTL is passed to pin 3 of IC [7320], where it controls the lifting or lowering of high frequencies in the PICTURE CONTROL. In the follow on Y/C mixing stage the luminance and chrominance signals are added to one another. The FBAS signal is clamped, passed to a video amplifier and then output at pin 11 of IC [7320].

SQPB (Quasi SVHS):

Transistors [7195] and [7200] determine whether the VHS or SQPB signal path is chosen. If the control signal SQ-PB is low at transistor [7200], the VHS signal path becomes active and if the SQ-PB is high the SQPB signal path is selected.

For SQPB the FM signal is filtered as for VHS with a "peaking circuit" (inductivity provided by [5150], capacitors [2150, 2151]).

The circuit varies the normal VHS resonance frequency. The the signal passes through unattenuated at 7,5 MHz (5 MHz for VHS) the rejection frequency being 13 MHz (9 MHZ for VHS). After correction for group delay (transistor [7203], resistors [3403, 3404, 3405], capacitors [2203], inductivity [5203]), emitter follower [7210], transistor [7215] with resistors [3415, 3413, 3417], with condensator [2215] and with inductivity [5215] the signal passes through the same path as for VHS playback.

4.2 Chrominance unit

4.2.1 Recording (PAL and MESECAM)

The FBAS signal from the IN/OUT switching unit enters IC [Y7320] at pin 7 where it passes through a servo amplifier (AGC) and a low pass filter, allowing only the colour carrier (4.43 MHz) to pass through. The received chroma signal passes to the main converter after passing through a servo amplifier (ACC) mixing the chroma signal with 5.06 MHz which generates the 627 kHZ and 9.49 MHz frequencies. The 9.49 MHz is suppressed by the low pass filter and the 627 kHZ signal (chroma) is passed to the colour killer. The chroma signal is then output from IC [Y7320] at pin 38 and passed to potentiometer CAP [Y3387] to adjust the recording current. The chroma signal (CH-tape) is then passed to the head amplifier switching unit (HC).

4.2.2 Playback

To suppress the luminance signal, the non-regulated FM signal of the tape is filtered by the 1.6 MHz suction circuit (capacitor [Y2422], inductivity [Y5422]) improving the cross-talk from luminance to the chroma signal. The chroma signal is matched with the Entry (pin 38) of IC [Y7320] through transistor [Y7225]. At this stage the signal is regulated after passing through a low pass filter it is then amplified (with ACC) and then passed to the main converter. The main converter mixes the 627 KHZ signal with the subcarrier frequency 5.06 MHz thus regaining the 4.43 MHz chroma signal. The 5.687 MHz generated at the same time, is filtered out by the 4.43 MHz band pass. The chroma signal is then output at pin 19 of IC [Y7320] and the inverted signal at pin 17. Both signals are required for the comb filter in IC [Y7340]. The chroma signal is passed to pin 2 and the inverted chroma to pin 4 of IC [Y7340]. The comb filter in IC [Y7340] delays the respective signal at PAL by two lines in a circuit branch and by one line for NTSC and then to add it to the undelayed signal. The switch in the delay branch is controlled by the NTSC-H signal at pin 22. It switches between PAL and NTSC delays. The scanning frequency (3 + 4.43 MHZ = 13.29 MHz) is generated internally (IC Y7340]) from the chroma frequency. The chroma signal cross-talk compensated by the comb filter is passed from pin 23 of IC[Y7340] to pin 21 of IC [Y7320], where it is released from the 13.29 MHz signal by a low pass filter. The signal is then amplified and passed to a colour killer. The follow-on NAP circuit is only important for NTSC and does not influence PAL signals. From a band pass filter the signal leaves IC [Y7320] at pin 25. PAL and NTSC signals arrive unchanged at pin 23 of IC [Y7320]. There the chroma signal is passed to the Y/C mixing stage, and the chroma and luminance signals are added. The received FBAS signal is then clamped, amplified with the VIDEO AMP and then output at pin 11 of the IC [Y7320]. The FBAS-OUT passes via transistor [Y7335] to the IN/OUT circuit from where it is passed to the modulator and to the SCART sockets.

For MESECAM playback the comb filter is ineffective. The remaining signal path is the same as the PAL signal path.

4.3. Carrier processing

4.3.1 Recording (PAL)

For carrier processing a voltage controlled crystal oscillator (VXO) in the IC is used [Y7320], whose frequency is determined by the crystal [Y1060] connected to pins 27 and 28. The REC-APC detector compares the phase of the incoming transmitter burst with the VXO phase and adjusts the VXO accordingly. The control voltage is then output at pin 29 of IC [Y7320]. Additionally an oscillator (321FH VCO) integrated in IC [Y7320] is used, which is regulated by the synchronising frequency. The VCO oscillates with a 321 x line frequency fH, corresponding to a frequency of 5.015625 MHz which is divided by 8. The thus generated 627 kHZ frequency is applied to the sub converter, where it is mixed with the oscillating frequency of the VXO (4.43361 MHz). This forms the sub carrier 5.06 MHz passing through an internal 5.06 MHz band pass and then to the main converter. At this stage the 4.43 MHz signal is mixed with the 5.06 MHz sub carrier, creating the 627 kHz signal.

4.3.2 Playback (NTSC, PAL)

During playback the XO oscillator is running freely on a crystal frequency of 4.43361 MHz and is used as a reference for the VCO oscillator. The VCO is synchronised after re-conversion of the chroma signal from 627 kHz (PAL) or 629 kHz (NTSC) to 4.43 MHz by the burst of the played back colour signal. The PB-APC stage generates the control voltage for the VCO, regulating at the same time the phase of the crystal oscillator with the phase of the re-converted 4.43 MHz burst. The control voltage is smoothed by a filter section [Y3455, Y2253, Y2255]. The frequency of the VCO (5.015625 MHz) is divided by 8 and passed to the sub-converter mixing it with the oscillating frequency of the XO (4.433619 MHz). This also creates the sub carrier 5.06 MHz which is then passesed via the internal band filter to the main converter generating a 4.43 MHz signal from the 627 kHz signal with the sub carrier frequency.

5. SECAM L, Chroma Signal Processing

5.1 Recording

The FBAS signal from the I/O circuit part is applied to transistor [7570] and passes through a 2.8 MHz trap circuit [5550, 2551], increasing the selection effect of the next cloche [1080, 2555]. The signal is then passed through an emitter follower [7552], which passes the selected chroma signal to IC [7575-29] via the cloche. The signal then passes through a 15 dB amplifier and is passed to a limiting amplifier with a subsequent frequency divider via pins 25 and 24. The 1.1 MHz recording signal, generated by a 1:4 division of the chroma signal, is passed to pin 21 of IC [7575]. From here, it passes through an external band pass filter [2561,.., 2567], lowering the harmonics created by the frequency division, and returns to IC [7575] at pin 19. The signal then passes through a 10 dB amplifier and is connected to pin 15. Between pins 15 and 14, the 1.1 MHz signal is passed via the anti-cloche [1082, 2575]. In IC [7575], the signal is limited and then passed via pin 17 to an additional 3.3 MHz trap [5586, 2586] and then to the adjustment for the chroma recording current [3581] (SCWC) to a further emitter follower [7583], from where it is passed on to the video head amplification circuit (HC). The R/P change-over of IC [7575] is carried out at pin 23 by the PB switching status.

5.2 Playback

During playback, the non-stabilised FM tape signal (with 1.1 Colour Under) from band (FM-UNC) that has been supplied by the circuit (HC) is applied to [2556] and is then passed to IC [7575-(23)], where it is amplified by 6 dB. From pin 21, the FM signal (with 1.1 Colour Under) then passes through a band pass filter [2561,..., 2567], where it is separated from the Y-FM signal. The 1.1 MHz signalo pin 10 of IC [7598] is High. This status signal is passed to the deck controller IC [Y7085] in circuit "DE". The IC also receives the AUTOSEC (VHS) or AUTOSEC (SVHS) switching status.
The data is passed to CC controller [7035-(14), -(20), - (32)] via serial interface [Y7085/-(62), -(63), -(64)]. The data is then linked depending on the operating condition and the respective shift registers are triggered.
In case of VHS, SEC-E is output via the shift register (SR5) [7380 - (12)] and SEC-W is output via thl is then passed via IC [7575-(10)] to the band pass [2581,..., 2576], removing interfering doubling products from the utility signal. In a second doubling stage, which the 2.2 MHz signal enters via IC [7575-(8)], the 4.4 MHz signal is formed. It is then amplified by 10 dB and passes via pin 31, the anti-cloche circuit [1085, 2585], to pin 32. From IC [7575-(1)], the 4.4 MHz signal is passed to the band pass [5590,..., 5594], also freeing the utility signal from interfering harmonics. The SECAM chroma signal gained thus passes through the amplifier stage [7588] and the emitter follower [7593] and is then passed to [Y7240], circuit part "VS". The signal is then added to the BAS signal or is passed to the "SF" circuit in S-VHS sets.

5.3 SECAM detection

IC [Y7598] receives the 4.4 MHz chroma signal from the "VS" or "SF" circuit via pin 1.
IC [Y7598] detects whether the signal is a SECAM signal during recording or a MESECAM signal during playback. For MESECAM signals, the switching voltage (AUTO-ME) passed to pin 10 of IC [7598] is High. This status signal is passed to the deck controller IC [Y7085] in circuit "DE". The IC also receives the AUTOSEC (VHS) or AUTOSEC (SVHS) switching status.
The data is passed to CC controller [7035-(14), -(20), - (32)] via serial interface [Y7085/-(62), -(63), -(64)]. The data is then linked depending on the operating condition and the respective shift registers are triggered.
In case of VHS, SEC-E is output via the shift register (SR5) [7380 - (12)] and SEC-W is output via the same shift register [7380-(6)]. In case of S-VHS, the change-over output of the signal electronic for the SEC-E is carried out via shift register SR9S [7410-(12)], and for SEC-W via shift register SR5 [7380-(6)].

6. Deck Electronics (DE)

The deck electronics can be subdivided into various functional groups:

1. Reset generation
2. Threading motor control
3. Drive interface (deck)
4. Tape start/end recognition
5. Head servo control/commutation
6. Tape servo control
7. Tracking/autotracking

6.1 Reset generation

After connection to the mains IC [7080] and capacitor [2081] generate a reset pulse at pin 19, re setting the central controller on the chassis (family board) IC [7335]. During the initialisation phase of the central controller, shift register [7019] is maintained in the "Disable condition". IC [7240] will then generate a Reset pulse at pins 11 and pin 12 . This pulse will reset the Deck [7085] the operating unit, and the camera controller.

6.2 Threading motor control

The drive also contains three switches: INIT (Initialisation switch for the threading tacho counter), REC (erase protection), and S-VHS. The conditions of these switches are coupled via [3203], [3205] and [3201] and then passed to the deck via pin 52. The lift and the threading mechanics are controlled via the threading motor by counting the threading tacho pulses together with the INIT switch and the TAPE START/TAPE END recognition. The threading tacho values are securely linked with the drive positions and passed to the deck controller, [7085] via IC 7080. The rotational direction of the threading motor is determined by pin 35 of the Deck controller. The revolutions are identified at pin 10 of the deck controller, This is a pulse wide modulated signal which is integrated by [3250] and [2093] .The power operation driver IC [7090] serves as power operation amplifier.
The lift is mechanically connected to one impeller turning in a fork light barrier. The tape must be inserted until 3 threading tacho pulses are generated, after which the tape controller activates the threading motor and takes over the loading of the tape. During ejection of the tape and shortly before reaching the end position of the lift, the tape start and tape end sensors are mechanically released at the same time. After a short while the deck switches off the threading motor.

6.3 Drive interface (deck)

The interface module [7080] takes over the following tasks:

- Processing of threading tacho pulses
- Processing of winding tacho pulses
- Processing of Capstan tacho pulses
- CTL, Write/Read

Processing the threading tacho pulses

The lift is mechanically connected to the threading tacho generator. Tapes must be pushed into the lift until 3 threading tacho pulses have been generated. These pulses are passed to the Deck interface module [7080/6]. Via one of the 4 comparators of this IC. The signal is processed and then passed to the Deck [7085/29]. By counting the threading tacho pulses, the INIT switch and the tape start and tape end recognition, the deck controls the threading motor.

Processing of winding tacho pulses

The optocouplers on the left and right winding disks (WT1/WT2) generate 8 pulses per rotation. These are formed to rectangular pulses in the drive interface module [7080] and via a comparator and passed from pins 8 and 9 to the deck [7085]. The controller calculates the actual tape position and tape type from the ratio of the revolutions.

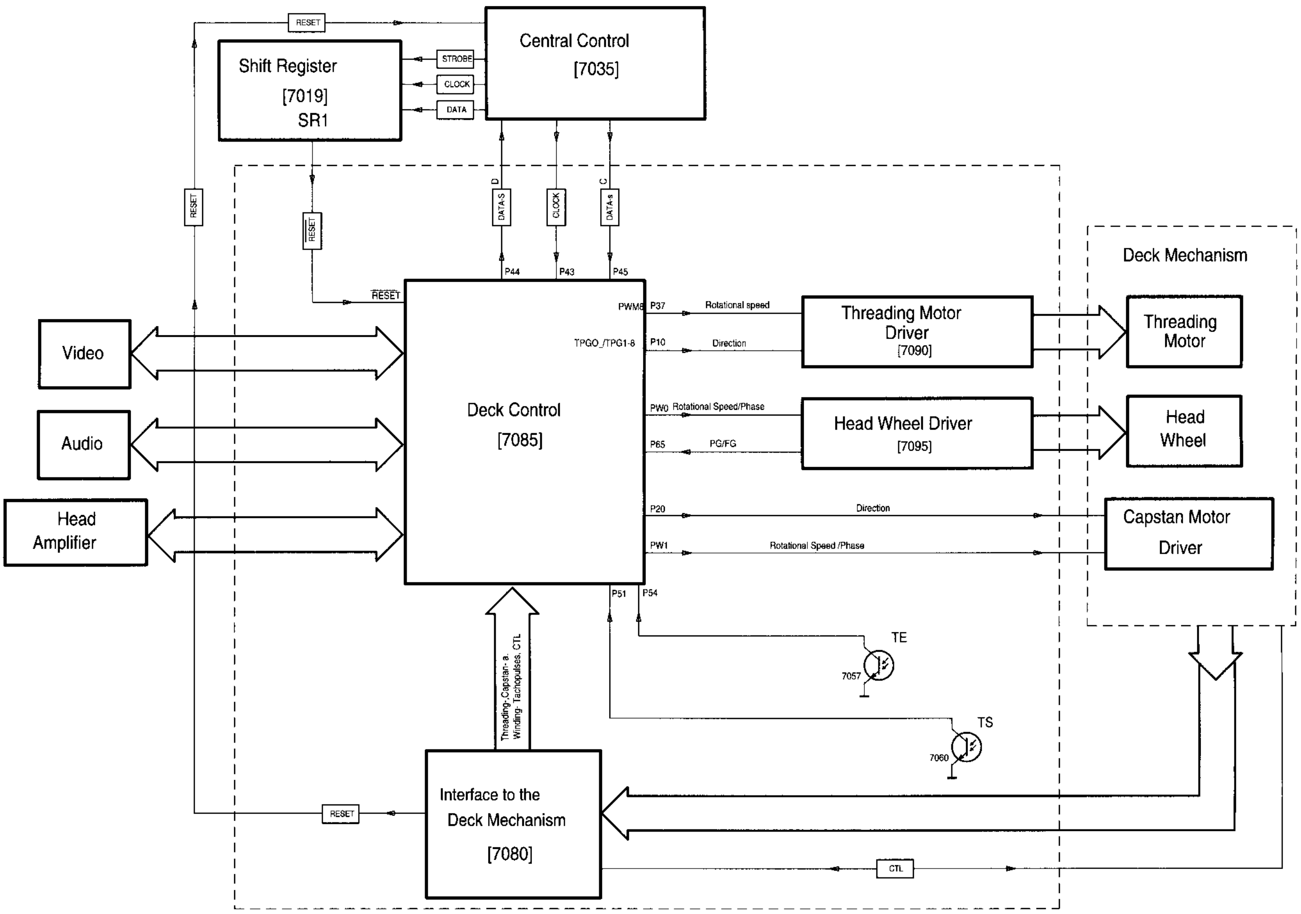
Processing the Capstan tacho pulses

The Magneto Recitive element produces pulses with a frequency of 1514 Hz during playback mode and these pulses provide the revolution control for the Capstan motor. The pulses are passed via connector contact [1502/15] to a comparator on the Deck interface module [7080/9]. Via [7080/12] these actual tacho values are passed to the deck controller [7085/13], which in turn generates a control voltage for the Capstan motor driver IC via a pulse wide modulated square wave voltage from [7085-25], it is integrated with [3214] and [2066].

CTL - Write/Read

During recording, coded 25 Hz CTL pulses are recorded on the tape via the synchronising head, required for tracking during playback, recognising the 16:9 image page format and the index operation. These 25 Hz pulses pass during the recording from IC [7085/11, /14, /16] to the drive interface module [7080/18] and via [7080/2] and connector contacts [1502/6, /7] to the synchronising head.
During playback, the recorded CTL pulses are read off the synchronising head, converted into rectangular pulses in 7080 and passed via [7080/18] to the Deck [7085/11, /14, /16] for evaluation. From the timing of the CTL slopes the controller is also able to recognise the speed e.g (SP, LP PAL, or SP, EP NTSC) of a recording. The respective playback speed is selected automatically.

Function Deck Control


RESET
Central Control
[7035]
Shift Register
[7019]
SR1
STROBE
CLOCK
DATA
RESET
RESET
D
DATA-S
CLOCK
C
DATA-s
P44
P43
P45
RESET
PWM8
P37
Rotational speed
TPGO_/TPG1-8
P10
Direction
Threading Motor Driver
[7090]
Deck Mechanism
Threading Motor
Head Wheel
PW0
Rotational Speed/Phase
P65
PG/FG
Head Wheel Driver
[7095]
Video
Audio
Head Amplifier
Deck Control
[7085]
P20
Direction
PW1
Rotational Speed /Phase
Capstan Motor Driver
P51
P54
TE
7057
TS
7060
Threading-,Capstan- a. Winding- Tachopulses, CTL
Interface to the Deck Mechanism
[7080]
RESET
CTL

6.4. Tape start/tape end recognition

To recognise the tape start and end the Video tape contains a piece of clear foil on both tape ends. A transmitter diode placed into the tape centre is clocked by transistor [7073].

The photo transistors are fitted on the left and right sides of the deck, tape start = TAS) tape end (TAE), Both supply a pulse, which goes from 5V towards 0V , if the clear foil is located between transmitter and phototransistor. Both phototransistors are connected to the Deck via pins 51 and 54.

6.5 Head servo control/commutation

The head servo control supplies the correct revolution and phase signals required by the head disc and is carried out within the deck controller [7085].

For commutation, the head motor driver IC [7095] uses the EMF (electro magnetic force) of the currentless motor winding (transformer principle) from which the rotation is derived at the same time. The phase of the head disk is derived from a position coil. Revolution and phase are multiplexed to one signal (IC[7095/6]). At the same time the falling slope of the signal is the revolution (FG) (450 Hz); the position (PG) pulses having a positive slope with 25 Hz. At pin 24 of the deck controller a PWM output with 12 bit resolution is present, the head disk control voltage containing revolution and phase information, is issued from this pin. This pulse wide modulated signal is passed to the head wheel motor driver [7095/14] and integrated with capacitor 2116.

6.6 Tape servo control

The Capstan motor is a three-phase motor with a Hall generator. These generate signals which are passed to the driver IC on the Capstan motor (on the deck) via pins 1..6. Depending on these signals, the commutation of the individual phases of the Capstan motor is carried out by the driver IC. The FC Hall element of the Capstan motor issues pulses with a frequency of 1514 Hz at nominal revolutions for the revolution control. These are pre amplified on the sensor board and passed to a comparator via connector contact [1502/4] and then to pin 9 of 7080. The rectangular shaped tacho pulses are then compared in IC [7085] with a set value. Via pin 25 of the deck controller [7085] a pulse wide modulated rectangular voltage is present. This is integrated by [3214] and [2066] and passed to the Capstan IC via the socket contact [1502/6].
The change of rotation direction is carried out by pin 34 of the deck controller [7085].
To avoid heating of the deck from the dissipation of the Capstan motor driver at slow speeds the supply voltage for the motor is switched. For tape speeds of < double, 8V, and for speeds > double a 17V supply voltage is applied. In the latter case (17V) pin 3 of the Deck [7085] is set to High (WIND), switching on transistor [7205].

6.7 Tracking/autotracking

During recording, 25 Hz CTL pulses are written to the tape via the synchronising head which are amplified in IC [7080] and are then passed to the Deck. These pulses are rectangular in shape. The pulses are used for tracking, recognition of the 16:9 page format and the index search.
After inserting a tape, the voltage TRIV derived from the FM audio packets envelope is passed to the deck via pin 50 for optimum tracking. Starting from the centre position the tracking value is increased or decreased until the envelope voltage decreases compared to the highest voltage value. The centre value between the two corner values is set as optimum value. After the measurement, the autotracking function is switched off and the determined phase position is regulated via the CTL pulses.

During AUDIO ONLY - playback the audio envelope FMHT is used for the tracking function.

The autotracking function is only restarted if one of the following conditions is fulfilled:

- 17 missing CTL pulses
- Change between LP and SP
- Change between PAL/SECAM and NTSC standards
- Change between NTSC-SP and NTSC-EP.

this detects whether a carrier recognised by the AFC is also modulated with a video signal.

EP=EXTENDED PLAY
SP=SHORT PLAY

7. Central Control (CC)

Operation overview

The central controller IC [7035] controls peripheral functional groups via various bus systems. The communication with the deck controller controlling all functions of the deck takes place via DATA-S1 and CLK-S, and the communication with the display controller takes place via the I²C bus (connector contacts [1510/12 and /14]) and the bus-interface [1510/18]. The sequence control can be divided into the following functional groups:

1. Central controller with external memory and parallel RAM
2. Generation of operational and switching voltage
3. Various bus systems (OSD, FC, shift registers, SAT-controlling,..)
4. Reset generation for the deck electronics, operating unit (DC) and Edit Controller
5. AGC and AFC, and audio adjustment.
6. Shift register [7019]
7. EEPROM
8. RS 232 Interface

7.1 Central controller with external memory and parallel RAM

The central controller IC [7035] carries out the main control of the VCR. As the multitude of tasks can not be managed by the maximum possible internal program memory 6k x 8 ROM, an external program Memory is required. An EPROM (depending on type 128kB...512kB), IC [7030] and a LATCH module, IC [7027], are used, the latch controlling the access to the EPROM.

As the linear address area of the central controller allows only 64kB addressing, the access to an up to 1024kB program memory is enabled by bank switching IC [7035/10, /11, and /12]. To allow access to the EPROM, IC [7033/50] (EA) is earthed. Port 0 of the central controller will then have the Low Order Address and port 2 the High Order Address. After switching the LATCH module at pin 51 (ALE), data can be read in via port 0. As the internal RAM of the central controller with 256 Byte is insufficient for C programming, an external static 8kx8 RAM, IC [7032] is used as data memory. Via WR (pin 35) and RD (pin 36) the access to the RAM is controlled (Read/Write), the EPROM [7030] being switched off at the same time via the OE.

7.2 Generation of operational and switching voltages

Via pin 5 of the shift register [7019] transistors [7015, 7013 and 7018] can be switched in sequence, generating a 12V_F switching voltage from a 12V continuous voltage.

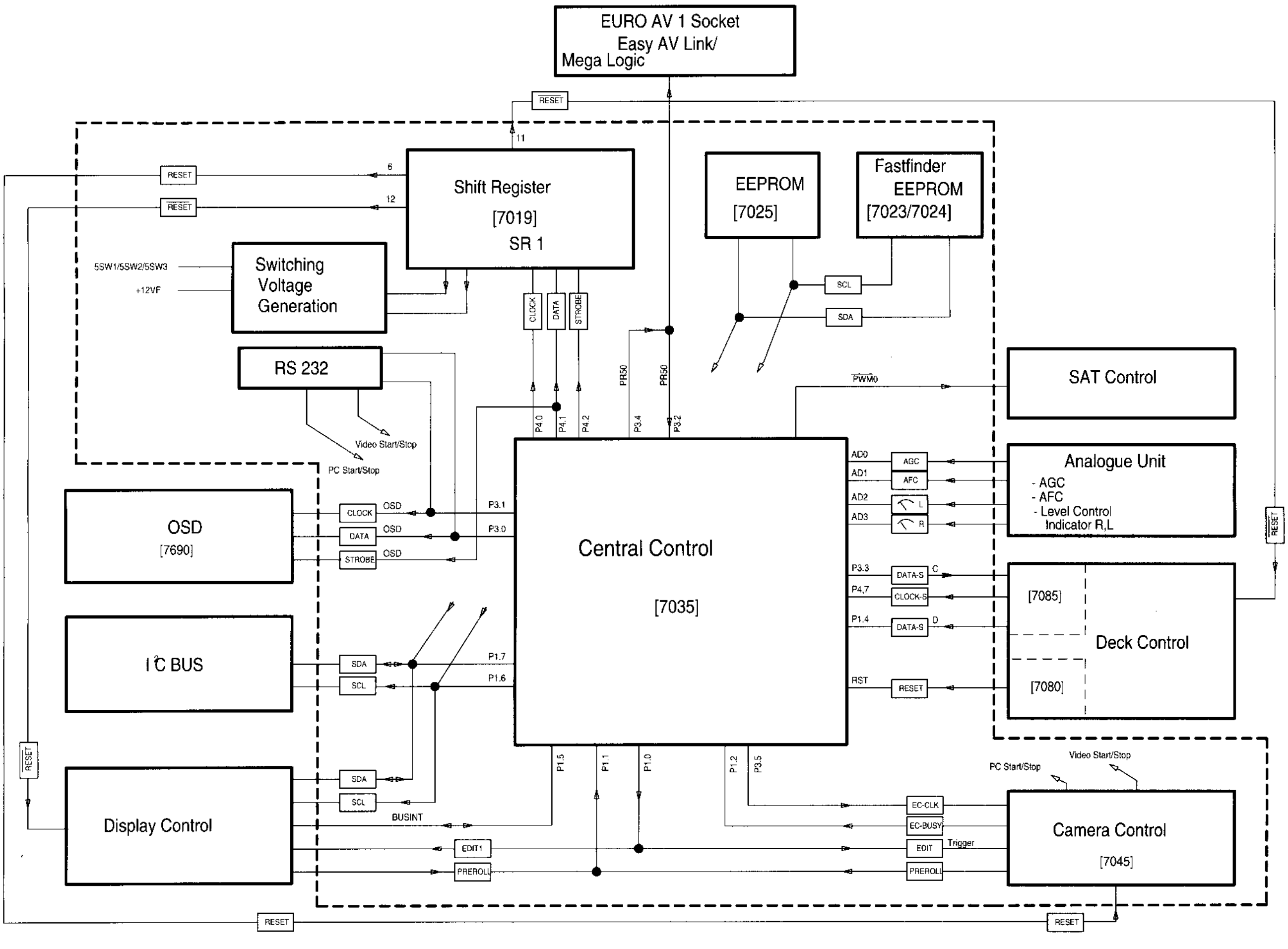
Via pin 4 of IC [7019] transistors [7017 and 7016] are switched to generate the 5SW1, 5SW2- switching voltage which is derived from the 5.2V supply voltage.

7.3 Various bus systems

a) "Easy Link"

A bi-directional single-conductor bus provides the communication between TV, video recorder and peripheral devices, running via contact 10 of the Euro-AV socket 1. The following features are available:

"One Touch Play":	VCR switches on TV
"One Touch VPT":	VCR switches TV on/off is indicated on TV
"Download":	TV transfers station settings to VCR
"What you See is what You Record":	VCR records TV image
"Pip +/-":	TV switches VCR tuner and uses VCR signal as Pip source


EURO AV 1 Socket
Easy AV Link/
Mega Logic
RESET
11
6
12
RESET
RESET
Shift Register
[7019]
SR 1
EEPROM
[7025]
Fastfinder
EEPROM
[7023/7024]
5SW1/5SW2/5SW3
+12VF
Switching
Voltage
Generation
CLOCK
DATA
STROBE
SCL
SDA
RS 232
PR50
PR50
PWM0
SAT Control
Video Start/Stop
PC Start/Stop
P4.0
P4.1
P4.2
P3.4
P3.2
AD0
AD1
AD2
AD3
AGC
AFC
L
R
Analogue Unit
- AGC
- AFC
- Level Control
Indicator R,L
RESET
OSD
[7690]
CLOCK
DATA
STROBE
OSD
OSD
OSD
P3.1
P3.0
Central Control
[7035]
P3.3
P4,7
P1.4
DATA-S
CLOCK-S
DATA-S
C
D
[7085]
Deck Control
[7080]
RST
RESET
I²C BUS
SDA
SCL
P1.7
P1.6
RESET
SDA
SCL
BUSINT
Display Control
P1.5
P1.1
P1.0
P1.2
P3.5
Video Start/Stop
PC Start/Stop
EC-CLK
EC-BUSY
EDIT
PREROLL
Trigger
EDIT1
PREROLL
Camera Control
[7045]
RESET
RESET

b) Serial bus extension port

By using the DATA (port 4.1) and CLOCK (port 4.0) lines, data is loaded into the present shift registers, the serial inputs and parallel outputs are switched to the shift register outputs by the transfer pulses supplied by the STROBE line.

c) Serial interface for camera µP (internal!)

The following four lines are required for the data transfer with the camera controller:

Edit 1, [7035-16]:	Data from Central Controller (CC) to Edit Control (EC)
Edit 2, [7035-17]:	Data from EC to CC
EC busy [7035-18]:	Reception acknowledgement EC to CC
EC-CLK, [7035-34]:	Clock from CC to EC

Together with the internal camera controller, edit control can be carried out with DC - Synchro Edit (Panasonic, JVC) and Lanc-Edit (Sony). In devices without camera controllers, lines Edit 1 and Edit 2 are directly passed to the central controller to facilitate Synchro Edit.

d) Serial interface to deck µP

The DATAD1[7035/14] and CLKD1 [7035-32] lines connect the Deck with the central controller. The serial interface operates in shift-register mode. The central controller is the master, consequently also generating the Clock signal at a transmission rate of 27 Byte per 1.8 msec. A subsequent break in transmission lasting 6 x 1.8 msec serves as synchronisation for the Deck. A complete transmission consequently takes 33 x 1.8 msec = 59.4 msec.

e) Serial interface to OSD

The OSD unit is connected to the central controller via 3 lines:

SCLK	{7035-30}	Serial Clock
SIN	{7035-29}	Serial Data
CS	{7035-20}	Chip Select

The transmission on this 3-conductor bus starts with a change of CS from High to Low. The data transfer takes place with the rising slope of the SCLK. The transmission of the Display RAM writing command can be followed up to CS = High by an infinite number of data characters.

7.4 Reset generation for Deck electronics, operating unit and Edit control

After connection to the mains IC 7080 and capacitor [2081] generate a reset pulse at pin 19. This resets the central controller [7035]. The shift register outputs [7019] are maintained in a disable condition (Outputs Tristate). By using this reset pulse transistor 7022,resistor 3073,Capacitor [2018] until the central controller has ended its initialising phase. IC [7240] then generates a reset pulse at pins 11 and pin 12, resetting the deck controller [7085] and the operating unit. The Edit Controller is reset via pin 6.

7.5 AGC, AFC and audio adjustment

TheAGC,AFC analog parts and the audio adjustment are connected to the central controller [7305/1... /4] via 4 analog inputsAD0..AD3.

AGC: The signal coming from the IF IC [7005] is passed via the AD0 input to the central controller [7035/4] where it is used for evaluation of the received field strength (station sorting to field strength).

AFC: The signal coming from the IF IC [7005] is applied at the analog input AD1 of the central controller [7305/3] and serves for adjustment of the tuner to the exact reception frequency. When correctly tuned this input will be (AD1) 2.5V.

Audio control: At analog inputs AD2 and AD3 of the central controller [7305/1, /2] the FM envelopes of the right or left audio channel are applied for evaluation. These supply data for the autoircuit part containing [7690], serves to superimpose predefined characters (fixed-programmed character ROM containing 256 characters) onto a self-generated blue background (menus, test pattern, etc.) or onto the EE or playback picture (superimposed). The unit is arranged between the video chroma IC output (VS circuit diagram) and the matrix switch (circuit diagram I/O).
The voltage is supplied via 5SW2 for the digital part and via the filtered +5VAN (see DE circuit diagram) the circuit is de-energized in ister.
At the same time this module can be used to control the switching voltage generation and the generation of reset pulses for deck electronics, operating unit and Edit controller [7019].

7.7 EEPROMs

Timer data, titles, channels and station abbreviations, show view data and child protection data, etc. are stored in IC [7025] (216kB) via the I^{2}C bus. Data about Fast Finder is stored in IC [7023], IC [7024]
via I^{2}C-Bus. The memory for Fast Finder can be extended with ICs [7020] and [7021].

7.8 RS232 - Interface

A PC or µC can be connected to the VCR via this interface (socket RS 232- connected to [Y1538]). Via this interface commands as Play, Still, Stop, Record,... are transmitted from the PC to the VCR. The VCR can also deliver Time Code - markings via the interface. The serial data transmission between the internal main controller IC [7035] and the PC goes via IC [7046]. The levels of this interface range from +15V ... - 15V.

8. On Screen Display (OS) - Description

The OSD circuit part containing [7690], serves to superimpose predefined characters (fixed-programmed character ROM containing 256 characters) onto a self-generated blue background (menus, test pattern, etc.) or onto the EE or playback picture (superimposed). The unit is arranged between the video chroma IC output (VS circuit diagram) and the matrix switch (circuit diagram I/O).
The voltage is supplied via 5SW2 for the digital part and via the filtered +5VAN (see DE circuit diagram) the circuit is de-energized in the Low Power Stand-By mode.
The crystal oscillator [7690/2, -/3] is balanced via [2695] to the four-fold PAL color sub-carrier frequencyand this generates a colored background including the sync signal (w/o line interlace).
The levels for the self-generated background and the white characters to be displayed with a black edge are internally set and relate to a FBAS signal amplitude of 2VSS.
[7690/15] is the FBAS input of the OSD component.At this point, the picture to be recorded or to be played back always has an amplitude of 2VSS. In the superimpose operation, rapid analog switches feed this picture or characters corresponding to the respective brightness values to output [7690/13]. Synchronization is carried out externally, vertically via a picture synchronizing pulse to 7690-(20) and horizontally by the line sync to [7690/17]. In order to receive pulses in the same regular pattern even during interference or noisy picture, the horizontal PLL supplies line pulses of exact frequency and phase to [7082/2]. The low pass filtered FBAS signal of the VS circuit part serves as reference for the [7082/6].
The picture pulse is generated on DE by filtering the mixed sync signal separated from the IC [7082] and pulse shaping with [7091] and [7097]. The artificial V pulse generated by the drive computer (DE) during special playback functions, such as still frame, slow motion and picture search is fed via [7098] to the base of [7099].
The FBAS signal is reduced down to 1VSS by [7664, 3660] and [3662] and is then passed by [7650] as a low-impeadence signal to the matrix switch.
The display RAM [7690] facilitates the display of 12 lines with 24 characters each. The main CC writes to this memory via the three-wire bus [7690/9, -/10, -/11] using character codes, with separate registers determining the display position and the background. Each character is made up of a 12x18 dot matrix, whose vertical expansion is limited by the line-scanning pattern. The character width is determined by the LC oscillator [7690/6, -/7]. This oscillator operates at a frequency of 6.55MHz ± 2% and is synchronized by the trailing edge of line pulses present at [7690/17] or internally generated in case of blue background. Consequently, the character

read-out cycle and the background are firmly assigned. Counters clocked with the line frequency and the LC oscillator take over the addressing of the display RAM and the character codes are converted into image points by the character ROM.

Additional SECAM circuit:

Whilst no chroma signal exists for achromatic picture excerpts in PAL and NTSC systems, the unmodulated color subcarriers are transmitted in SECAM systems. An interruption of a subcarrier by the insertion of a character creates red and blue color streaks in the superposition.
Consequently, the colour information for the EE or the playback modes are formed by switches [7670] and [7674] and the band pass filter [2669] and [5669] into a low impeadence signals which is present at [7664].
For blue menu boards or other television standards, the circuit is blocked via a low level at [7690/19].

9. Input/Output (IO)

9.1. Video

9.1.1 General

Due to its numerous functions, the device requires an In/Out circuit part, selecting and distributing arriving or emitted signals depending on the source and the operating condition. The device mainly consists of a matrix switch IC [7200] for the video signals, two Euro-AV sockets (Scart1, Scart2), a "fading in switch" for text [Y7840] and a comparator [7875] for the "FOLLOW TV" function. It also contains various transistors [Y7700, Y7695,...] switching different signals depending on the selected operation.

9.1.2 Recording, loop-through and playback

Signals are selected and distributed in the matrix switches of IC [7200], where the input signals of the reference sources EURO-AV1[Y1916], EURO-AV2 [1917], CV, HF, EE/PB and the S-socket (Y)-IN are applied. These are clamped, selected according to the operating mode and are passed to the image processing circuits or to the output sockets. Applied chrominance input signals (Scart1/ Scart2 S-IN) are selected with the switch IC [7110]. If necessary, transistors [7059, 7066, 7070 and 7072] are used to switch input terminating resistors for the RGB or the chrominance signals.
The chrominance output signal is amplified in the chrominance amplifier [7210, 7208] and the respective circuit and is then passed to the chrominance output drivers.
Y and C signals are also added in matrix switch [7200], from where they are passed on as FBAS signals.
Transistors [7006, 7014, 7018] are used to supply the RGB or chroma loop-through signal between EURO-AV1 and EURO-AV2.

9.1.3 "Activation circuit"

The circuit around transistors [7130 and 7134] (at the connector contact 20 of EURO-AV1 or contact 8 of the AV2 socket!) is also active in the "0-watt operation". If a signal is applied to the socket contact 20 of the EURO-AV1 socket in this operating condition, e.g. if the TV is switched on or a switching voltage is applied at socket contact 8 of the AV2 socket, the circuit reports this to the control electronics, which in turn causes the set to switch to Stand By-Mode.

9.1.4 Decoder operation

The decoder (e.g. Pay-TV) is connected to the SCART2 socket and the TV to the SCART1 socket. If the devices are connected in this manner, the decoder can be used without rearranging TV or video recorder connections.
When using the video recorder, the encoded video and audio signals are passed to the decoder via SCART2. The decoded signals are then returned to the video recorder via SCART2. This signal path must be enabled for each program when tuning into the programs.
For TV use, the encoded video and audio signals are passed from the TV via SCART1 to SCART2 and on to the decoder (e.g. Pay-TV). Here the signals are decoded and returned via SCART2 and SCART1 to the TV. IC [7770] is used for the connection/switching of these devices.

9.1.5 "FOLLOW TV" circuit

This circuit (arranged on the tuner/modulator unit in the circuit diagrams) places each individual program of the video recorder onto the same program position number as in the connected TV.
For this, the FBAS signal from the IF part of the video recorder is compared with the TV signal.
The recorder signal is passed to transistor [7832], where the signal is inverted and amplified. The adjusted FBAS signal from the TV is passed to amplifier stage [7834] via the EURO-AV1 socket and matrix switch [7200]. Both signals are then added and passed to the negative comparator input [7830-(2)]. In case of equal FBAS signals, the voltage at pin 2 of the comparator is higher than the stipulated input voltage at pin 3. The comparator output (pin 1) is low in this case. If the FBAS signals differ, the voltage at pin 2 of IC [7830] is lower than the voltage at pin 3. In this case, the comparator switches its output to High. The corresponding output level of the comparator is then applied to the central controller [7035/19]. If the central controller only receives a low level via a measuring cycle, the received programme is stored under the same programme number as in the TV.

9.2. Audio

9.2.1 General

Due to its numerous functions, this part of the VCR requires an In/Out circuit section, this enables the selecting and distributing arriving or emitted signals depending on the source and operating condition. This section of the VCR mainly consists of a matrix switch which is in Audio IC [7200] and two Euro-AV sockets (Scart1, Scart2).

9.2.2 Recording, loop-through and playback

Audio signals are selected and distributed in the matrix switch in IC [7400], where the input signals, EURO-AV1[Y1916], EURO-AV2 [1917] and HF are applied. The signals are selected according to the operating mode and passed to the audio processing circuits or a direct "loop-through" of the audio signal to the Euro AV sockets is carried out. Audio IC [7200] is controlled by the I2C bus with the integrated matrix switch.

10. AUDIO (AU)

10.1 FM Audio

Due to the symmetrical design of the audio channels only the left channel (L) is described.

10.1.1 Operational overview

In the FM stereo switching circuit, the audio signals are selected from the different input sources during recording and then compressed. Then the two carrier frequencies (1.4 MHz - left and 1.8 MHz - right channel) are frequency modulated and recorded on to the tape by both rotating audio heads.
During playback, the information read from the tape from the rotating audio heads is passed to the FM tone circuit section. After demodulation the signals are expanded to the original dynamics (noise suppression) and then passed to the audio output sockets.

10.1.2 Recording (eg. via AV I or EI)

The input signals (LINE, Euro-AVI, Euro-AVII (decoder), CV (or E3) and RF) are present at the input selection switch (INPSEL) of IC [7400]. The selected LF signal (L) passes through an internal digital level adjuster and is passed via a summer to the standard audio linear circuit for longitudinal track recording and then via the low pass (LPF) to a compressor stage (factor 2) for noise reduction. From the compressor it passes from pin 64 and pin 63 of IC [7400] through an audio clipper, which serves as a snubber. After passing through a central controller stage and a RF low pass filter (RF LPF) the modulated 1.4 MHz FM signal is added to the 1.8 MHz FM signal of the right channel and passes via pin 56 and connector contacts [1637-(12)] and [1506-(4)] as "FM to tape"(FMTT) to the heads.
When recording both carrier frequencies on to the tape the RF amplitude of the 1.8 MHz carrier is approx 9,5 dB larger, as this carrier is erased more by the subsequent video head. This

guarantees, that both RF carriers have approximately the same amplitude during playback.
All selection switches and regulators in the IC [7400] are controlled by the central controller , IC [7035] via the I²C bus.

10.1.3 Playback

After the head amplifier the tape signal passes via [1637-(14)] to the FM audio circuit, it is then separated by the internal band pass filter (1.4 MHz left / 1.8 MHz right) and passed via the RF limiter (RF LIM) to the demodulators (PLL). The demodulated RF signal (L) passes through a sample-and-hold circuit, which suppresses LF signal interference caused by the head change during reading. The "sample-and-hold "pulse" required for this operation is generated within the IC [7400] by using the "HI sound" pulse (IC [7085] on the motherboard). The LF signal (L) then leaves the IC [7400] at pin 63, passes via pin 64 back into the IC and then via a low pass filter (for noise reduction) to the outputs via the output selection switches. The hi-fi audio signals are added and passed via IC [7400-(18)] to the modulator. From the envelope rectifier the rectified LF-signal passes via the connector contact [1637- (7)] to the main controller IC [7035]. IC [7035] controls the bargraph level display on the operating unit via the serial interface and the display controller IC [7035].

10.1.4 Hi-fi audio recognition

The 1.4 MHz part of the "FM from tape" (FMFT) signal passes in the IC [7400] from the RF limiter (RF LIM) via a level detector (LEV DET), pin 60 and connector contact [1637-(3)] to the central controller IC [7085]. This direct voltage is dependent on the FM signal amplitude and therefore represents the actual signal amplitude.
If the voltage is above 2.14V, the hi-fi audio recording will be played back. If it is below 1.9V, the central controller switches over to the standard track. This value is also used with an A/D converter for tracking adjustment.

10.2 Audio Linear

10.2.1 Operational overview

During the recording the audio signals destined for the longitudinal track recording pass from the input selection switch (INP SELECT) in IC 7400 to the standard track circuit within in the same IC and are then prepared for recording.
During playback the LF signal is taken from the REC/AW head, amplified and passed to the output selection switch [IC 7400].

10.2.2 Recording

From the input selection switch [7400] the selected LF signal passes via an automatic level controller (ALC), at pins 29,28 and then on to the recording equaliser (REC EQ). From the record equaliser via connector contact [1503/1] the signal is then applied to the recording head.
The LF signal leaves the IC [7400] at pin 33, and is added as writing current [3603] to the pre-magnetisation (BIAS current) [3645].

It is then passed via connector contact [1503-1] to the REC/PB head. The other end of the REC/PB head is connected to ground via the connector contact [1503-3] and IC [7400-34]. The pre-magnetisation current is adjustable with [3645] (BIAS).
In Longplay mode, the switch-over of the recording equalisation is carried out with the internal switch at IC [7010/30] under the control of the I²C bus. The S-VHS equalisation is switched through transistors [7640, 7635] controlled by shift register SR4 [7402-(5,11)].

10.2.3 Erasing oscillator

The main and linear audio erasing heads are triggered by two separate osccillators:
The main erasing head oscillator consists of transistors [Y7510] and [Y7515]. The oscillator is triggered by the switching levels WR-A2 (from shift register SR4, IC [7340-6]) and WR-A1. The Linear erasing head oscillator consists of transistor [7655] and oscillator circuit [1250/Y2648]. At this point the pre-magnetising voltage (BIAS) is also tapped.
The Linear erasing oscillator is triggered by the switching level WR-A1 from [IC 7085-(60)] and by transistors [7665] and [7660].
During post-synchronisation only the Linear erasing head is triggered.

10.2.4 Playback

During playback the REC/PB head is earthed via connector contact [1503/1] and transistors [7610] and [7615]. The REC/PB switch-over is controlled via the I2C bus. The LF signal read off the REC/PB head passes via [1503-3] to IC [7400/34]. In IC [7400] it passes through a linear amplifier, an integrated playback level adjuster (PSET) and an integrated playback equaliser (PB EQ). From here it leaves the IC [7400] at pin 29 and passes via capacitor [2627] and pin 28 back into the IC, where it passes through the MUTE circuit (NO MUTE), an output selection switch (OUT SEL) and then to the outputs.
For "LP playback" the integrated switch at pin 35 of IC [7400] effects a rectification change-over with the PB EQ.

10.2.5 Muting

The "Mute" signal, arriving from the I2C bus, mutes the audio outputs of the IC [7400] during servo lock up and all other operations except recording, playback and EE operation.

11. Videotext

The additional VT module contains mainly two functional blocks, [7140] for VPS-, PDC- and Videotext processing, and [7080] for converting the menu or Videotext boards output into either RGB or a standard a PAL-FBAS signal.
The voltage is supplied via the 5D1, with the circuit being de-energized in the Low Power Stand-By mode.

11.1. IVT (Integrated Video-Input-Processor and Teletext Decoder)

IC [7140] provides the following functions:

- Data separation

An adaptive data separation stage generates the VPS-, PDC- or Videotext data from the FBAS signal supplied via the [7140/9]. For this purpose, the video signal is passed to an A/D converter. The data separation and cycle processing, 6.9375MHz for PDC and Videotext, or 5MHz for VPS, is digital. The charging capacitor [7140/8] stores the black level. A reference current for the analog signal processing is generated via [7140/10].

- Cycle PLL

A free-running crystal oscillator [7140/1, -/2, -/3] supplies a frequency of 27MHz. This is passed to the A/D converter, and to a digital PLL, using it to generate the 6MHz, 1MHz and 15.625kHz base frequencies. The line frequency generated is thus passed for phase comparison, as is the sync signal derived from the FBAS signal. The characteristic of the downstream digital loop filter is influenced by a control register and the 6MHz oscillator is corrected accordingly.
In this way, all frequencies generated by the IVT are line coupled with the arriving FBAS signal. During free-running (i. dot matrix, stored in the character ROM of the IVT. The line-coupled 1MHz cycle advances the addressing of the page memory. The character representing the 8-bit code forms another part of the address on the character ROM, the other part is formed by a line counter. The ROM thus supplies a 12-bit data word after each 1µs according to the brightness information. This is loaded into a shift register and is read with a 12MHz pixel cycle derived from a 6MHz cycle. The respective RGB signals are available at the push-pull outputs [7140/16, -/17, -/18]. Their amplitude is determined by the reference voltage at [7140/19]. After amplification by [7045] and [7040], the blank signal of [7140/20] controls the FBAS signal converter [7100] on circuit component I/O (VHS) or [7040 and 7060] on circuit component CF (S-VHS).

11.2. RGB encoder and FBAS converter

The RGB signals are applied to [7080/2, -/3, -/4] and the mixed sync signals of [7140] are applied to [7080/10]. The 4.43MHz color subcarrier supplied by the Vihe page number The acquisition then compares all arriving data with the requested page and saves these in the page memory.

- Page memory

The unit contains an 8kx8 DRAM for saving up to 8 text pages. VPS and PDC data are also stored in the DRAM, from where they can be called up by the main computer CC.

- Character generator

There are 256 characters. An 8-bit data word is assigned to each character. 32 are control characters, the rest are graphical or alphanumeric characters in the form of a 12x10 dot matrix, stored in the character ROM of the IVT. The line-coupled 1MHz cycle advances the addressing of the page memory. The character representing the 8-bit code forms another part of the address on the character ROM, the other part is formed by a line counter. The ROM thus supplies a 12-bit data word after each 1µs according to the brightness information. This is loaded into a shift register and is read with a 12MHz pixel cycle derived from a 6MHz cycle.
The respective RGB signals are available at the push-pull outputs [7140/16, -/17, -/18]. Their amplitude is determined by the reference voltage at [7140/19]. After amplification by [7045] and [7040], the blank signal of [7140/20] controls the FBAS signal converter [7100] on circuit component I/O (VHS) or [7040 and 7060] on circuit component CF (S-VHS).

11.2. RGB encoder and FBAS converter

The RGB signals are applied to [7080/2, -/3, -/4] and the mixed sync signals of [7140] are applied to [7080/10]. The 4.43MHz color subcarrier supplied by the Video-Chroma-IC (VS circuit diagram) is applied via [7080/6].
The IC [7080] uses these signals to generate a Y signal (brightness) at [7080/16] and a PAL-Chroma signal at [7080-(15)], which, in case of VHS, is added to the FBAS via [3148] and [3150] in the I/O circuit part and is passed to the inputs of a rapid converter [7100/1, -/10].
There, [7100/6, -/7, -/8, -/10) correspond to the EE or recording circuit and [7100/1. -/3, -/4, -/5] are also responsible for the playback signal.
For S-VHS, the brightness and chroma signals are passed separately to the converter [7040] and [7060] (circuit component CF), where the pins -(1), -(3), -(4), -(5) correspond to the EE or recording circuit and -(6), -(7), -(8), -(10) to the playback circuit.
The öblankö signal supplied by [7140/20] determines the keying in point of the text information. There are three conditions. For subtitles, the öBlankö corresponds to a square wave signal, for whole text pages the signal is high and, for pages on which no text is superimposed, the signal is low. At I/O there is an additional option to block the blank via shift register 3 [7000-(7)]. This pin is always low, except during subtitle and title generation recording.

11.3. Subtitle recording, title generator

To record subtitles without color defects, the 4.43 MHz subcarrier and the burst phase - important for PAL - must be synchronous to the transmitter picture. For this purpose, the colour subcarrier passes through a phase shifter with [7055, 3057] and [2058]. Apart from the subcarrier, the Chroma-PLL also generates a burst phase identification (VS circuit diagram for VHS [7230] or SF circuit diagram for S-VHS [7312]). This fH/2 signal of approx. 30mVSS is passed to the tuned amplifier [7005, 1001] and [2000] from which [7010] and [7015] form a square wave signal of approx. 5VSS and half the line frequency, which then synchronizes the chroma V component of the FBAS signal generated by [7080] via [7080-(7)]. In case of whole pages, this synchronization is blocked via [7017], in which case [7080-(7)] is approx. 0V.
The detection of "Subtitle" or "Whole page" is automatic via integration capacitor [2027], which only achieves a voltage of approx. 0.7 V for whole pages.

11.4. Colour replacing circuit - SECAM option

For S-VHS sets the colour replacement is carried out by the shift register 6 on circuit diagram CF).
Whilst in PAL and NTSC systems no chroma signal exists for achromatic picture extracts, the unmodulated colour subcarriers are transferred in SECAM. The interruption of a subcarrier by inserting a character results in red and blue color stripes at the point of superposition. For SECAM the color information of the transmission picture is therefore positioned on top of the subtitle superposition which then appears black/white and slightly transparent. The same effect is used for the Feature EditTable.
For VHS sets, the colour information of the EE or the recording image is passed via switch [7073] and that of the playback image via switch [7074] to the band pass [2065, 5065] and [3065]. The converter is activated by the playback voltage +5VW. Transistors [7060] and [7070] amplify the chroma signal 2-fold. [7050] and [7052] form another converter, which either switches the PAL chroma of [7080-(15)] to the [7090] or the chroma of the background image via [7050] and a high level at the Open-Collector output. In PAL transmitters, [7140-(21)]. [7140-(21)] is on low for whole pages and subtitles.
The delay spool [5095] in the circuit part I/O is shortened via [7097] for SECAM playback and the shift register 4 [7402-(11)] (circuit diagram AU).

11.5. Superposition during playback

The Fast-Finder and Edit-Table features require superposition also during playback. For this, [7140] is externally synchronized via the connectors -(13) and -(14). For the horizontal deflection, the Teletext contains the CS mixed sync signal and, for the vertical selection, a picture pulse from the deck electronics (DE circuit diagram). At this stage, the picture pulse is generated by filtering the mixed sync signal separated from [7802] and amplified by [7083] and by pulse formation via [7092] and [7097]. The base of the [7099] receives the artificial pulse additionally generated by the DE computer during special playback functions, such as still picture, slow motion and picture search via [7098]. Via the shift register [7019-(7)], the CC computer selects the filtered picture pulse during EE mode, recording or playback and the artificial V pulse for special playback functions.
During playback, the voltage +5VW has a level of approx. 5V. [7110] then switches the operating resistor [3111] to the collector of [7115] which in turn inverts the picture pulse and passes it to IC [7140-(14)]. The same applies to the horizontal synchronization with [3012]. IC [7140-(18)] is, however, both an input and an output. When displaying an entire page during playback, the [7140-(13)] supplies the correct mixed sync signal, suppressing the externally applied line sync with [7018].
During recording or EE operation the +5VW is only approx. 0.5V. The external C sync is then also blocked and [7140-(14)] must be a constant +5V.

12. Comb filter (CF)

12.1 Functional overview

This circuit component divides the FBAS signal into a luminance and a chrominance component (for PAL signals), loops subtitles or whole videotext pages into the signal paths, makes a selection from different input signals and carries out a filtration and run-time correction for SECAM (only for multi-standard sets!) MESECAM signals.

12.2 Recording

The FBAS or BAS signal is provided by the IN/OUT module via connector contact [1526-(9)] and passes to IC [7010-17] via emitter follower [7306] and to the "SEC TO PAL" circuit component [FBAS-TR] (only for SECAM).
In the IC [7010], the chroma signal and the brightness signal are separated and passed on to different IC outputs. The chroma signal is provided at IC [7010-12] and the brightness signal at IC [7010-14] for further processing.
With a Y/C input, the chroma signal arriving via connector contact [1526-7] from the IN/OUT module is offered to IC [7010] at pin 10 and the luminance signal at pin 17. The control line at pin 3 of IC [7010] is used in this case to switch (Y/C-IN) to the bypass mode - and IC [7010] for SECAM or MESECAM - i.e. chrominance and luminance are not separated.

The switch IC [7030] switches between the FBAS signal, the colour signal of the comb filter or the colour signal from the SP circuit component. The control is provided by the status lines SR1 and SR2 (pin 2 or pin 4 [IC 7030]). The signal is then passed to the SF circuit component via a further switch IC [7040] and an emitter follower

[7042]. The signal is passed to the connector contact [1526-13] and on to the IN/OUT module via switch IC [7040] and the emitter follower [7545].

The chroma signal (CVT) for subtitles or whole pages, supplied by the text module via connector contact [1526-(16)], is inserted into the respective signal by switch IC [7040]. The control is provided by the status lines "UT-REC" and "GANZE_SEITE" (WHOLE PAGE), applied to ICs [7040/7060] via connector contacts [1526-(15), -(14)] from the IN/OUT module.

The brightness or FBAS signal passes as a "VIDEO_IN" signal from IC [7010-(14)], via IC [7070] (in European sets only!), and via IC [7060], and emitter follower [7062] to the SH circuit component. The YVT signal arriving from the text module via connector contact [1526-(18)] is inserted into the existing video signal with the switch IC [7060] controlled by the status lines "UT_REC" or "GANZE_SEITE" (WHOLE PAGE).
In multi-standard sets or in SEC TO PAL mode, the brightness signal can be connected for signal processing (SH) with IC [7070].

In SEC TO PAL mode (multi-standard sets), the FBAS signal is passed from the connector contact [1526 - (9)] via the emitter follower [7306] and connector contact [1524-(3)](SH) to the SP circuit component. Parallel to this, the signal passes to a 3 MHz low-pass filter [1002] and a trap circuit [1004, 2084]. In this stage, the signal is cleaned from the chroma parts and passed via the run-time correction elements [7092, 5094, 2094, 3094, 7102, 5106, 2106, 3106] and an emitter follower [7108] to switch IC [7070], enabling further signal processing via status lines SR7 and SR8, if necessary.

12.3 Playback

The VIDEO_OUT signal arriving from the SH circuit component passes via ICs [7050], [7060] to the emitter follower [7066] and via the connector contact [1526 - (11)] to the IN/OUT module.
The chroma signal EE/PB_CH arriving from the SF circuit component passes via the two ICs [7050, 7040] and the emitter follower [7545] to the connector contact [1526 - (13)] and to the IN/OUT module for further processing. The signal path through the IC [7050] is determined by both status lines SR4 and SR5.

13. S-VHS Luminance processing (SH)

13.1. Functional overview

During recording, the luminance unit (SH) serves to adjust the luminance or FBAS* signal from the CF circuit component (*only for Mesecam or Secam) as well as to convert the luminance signal to a frequency-modulated signal and to provide this signal to the head amplifier for further processing.
During playback, its main function is the processing of the FM signal provided by the VS circuit component which is reconverted into an amplitude-modulated signal, freed from drop-outs in IC [7520] and is then returned to the CF circuit component.

13.2. Recording

During recording, the Mesecam/Secam FBAS or luminance signal is passed to IC [7520-(48)] via capacitor [2591]. Here it passes through an AGC stage and is then available at pin -(4) for further processing. The adjusted signal is passed to the "comb filter" circuit component (CF) via IC [7520-(43)] and transistor [7588].

13.2.1 S-VHS recording

The luminance signal passes from pin 4 of IC [7520] via a frequency response correction circuit [7598, 7608, 7612, 7606, 7636, 7615, 1052] to the 5 MHz low-pass filter [1054] and via 2501 to pin 16 of IC [7520]. The signal leaves the IC at pin 6 and passes through a non-linear peaking circuit [7656, 7662, 7664, 7670, 7672, 7674, 1060, 7678, 7684, 7686, 7688] which is switched between recording and playback by IC [7810] and is then passed via [2713] to pin 14 of the SVHS sub emphasis IC [7700]. The luminance signal then leaves IC [7700] at pin 7 and is passed to pin 7 of IC [7520] via transistor [7702], the recording/playback switch IC [7810] and capacitor [2487]. In this IC, it is passed to the ME stage and to the FM modulator via the adjusting controller (WV-SVHS) [3513]. The controller (SV-SVHS)[3509] is used to set the SVHS black level. The FM signal leaves IC [7520] at pin 25 and then passes via a SVHS-FM filter [5760, 5758] to the FM output stage [7764, 7766], and via adjuster [3765] to connector contact (CF) [1530-(6)] and then to the head amplifier.

13.2.2 VHS recording

The luminance or FBAS signal for Mesecam or Secam passes from pin 4 of IC [7520] via the frequency response correction circuit (see S-VHS recording) to the 3 MHz low-pass filter [1056] and via the electrolytic capacitor [2500] to pin 14 of IC [7520]. In this IC, the signal then passes to pin -(6), through a non-linear peaking circuit [7656, 7662, 7664, 7670, 7672, 7674, 1060, 7678, 7684, 7686, 7688], which is switched between recording and playback by IC [7810], and then via [2488] to IC [7520-(8)]. It is then passed via a NLE stage (Non-Linear Emphasis) to a ME stage (Main Emphasis) [3502, 2504, 2505, 3500]. It leaves the IC [7520] via pin 19. From the adjuster (WV-VHS) [3507], the signal returns via pin 20 to the IC and to the FM modulator. The black synchronous level (SV-VHS) is determined with adjuster [3503].
The FM signal leaves IC [7520] at pin 25, is then passed to the FM output stage [7768, 7766] via a band-pass filter [5774, ...] and to the connector contact (CF) 1530-(6) via adjuster [3765] and then on to the head amplifier.

13.3. Playback

During playback, the tape FM signal (FMF.T.) is passed from the head amplifier via the motherboard, containing both FM filters for VHS and SVHS (see description VS circuit component for VHS sets), to the connector contact [1530-(1)] on the SVHS board.

13.3.1 S-VHS playback

The FM signal passes to IC [7520 -(29,26)], in which it runs through a limiter and marking stage, before being converted to a luminance signal in a FM demodulator. The de-emphasis is active at pin 36 [3560, 3562, 2560, 2562]. In IC [7520], the signal also passes through a 2.5 dB amplifier and via pin 4, a frequency response correction stage (see recording), to the 5 MHz low-pass filter [1054] and then to pin 16. The luminance playback amplitude is set with the adjusting controller [3545]. The signal path up to pin 7 of IC [7520] is the same as for S-VHS recording. During its further course, the luminance signal is passed to a PIC-CONTROL stage in the IC, controlled by a direct voltage at pin 40. From here, the luminance signal is passed to pin 43 via a further amplifier and then to the IN/OUT module via emitter follower [7588] and connector contact [1526-(11)].

13.3.2 VHS playback

The FM signal is passed to IC [7520 -(30)]. From this stage, the course of the signal corresponds with that of the VHS recording or S-VHS playback, with the exception that it passes through the 3 MHz low-pass filter [1056].

13.3.3 Drop-out - detection and insertion

The FM signal applied to IC [7520-(30)] is passed to a drop-out detection circuit in IC [7520]. In the case of a signal drop out, this circuit emits a pulse to the drop-out switch for the duration of the drop out. The luminance signal from pin 13 of IC [7520] is passed to the 1 H delay line [7725]. At pin 5, the latter receives the clock frequency 2 fsc. The luminance signal delayed by 1 line is applied to IC [7725-(3)], which then passes to IC [7520-(9)] via transistor [7722], a low pass filter and an emitter follower [7728]. In case of a drop out, the switch in the IC uses the drop-out (free) signal delayed by 1 line. The correct amplitude of the signal to be inserted is set with adjuster [3723].

14. Chrominance circuit component [SF] - Description

14.1 Functional Overview

During recording, the 4.43 MHz colour signal is converted to 627 kHz with the aid of a 5.06 MHz mixing frequency. The pilot burst is also recorded during the H-Sync period [S-VHS standard].
For playback, the signal is converted back from the 627 kHz colour signal to the original 4.43 MHz colour signal with the aid of a mixing frequency. The signal is amplified, added to the BAS signal, and enters the modulator and the FBAS outlet sockets. It also enters the SVHS sockets as a 4.43 MHz colour signal.

14.2 Recording

The signal path for recording is the same for PAL and MESECAM. The FBAS signal or C signal from the CF circuit component enters IC [7270] via pin 9. Inside the IC, the signal passes through a REC/PB switch, leaves the IC at pin 5 and arrives at the external 4.43 MHz band-pass [1025]. At this stage, the chroma and FBAS signals are separated. The chroma signal then enters another REC/PB switch via pin 17, an amplifier [ACC AMP], pin 6, and a capacitor [2266] and then the main mixer [MAIN BM] via pin 7. The 4.43 MHz chroma signal and the 5.06 MHz sub-carrier frequency are then mixed in the main mixer. The converted 627 kHz chrow pass filter [5176, 2180], the phase shift [all pass], the inverter stage [7190] and the switching stage [7192, 7196]. These two signal paths form what is known as a "comb filter" for cross-talk compensation.
The function of a comb filter is to delay the signal by 2 lines for PAL and by one line for NTSC in a switching branch, and to add it to the non-delayed signal. In this case, the playback signal is delayed between [7175-(1)] and [7175-(3)]. It then runs through low pass [5176/2180] and a phase shift the parallel oscillation circuit [1027, 2262]. Its amplitude is determined by adjuster [3295].

14.3 EE mode [Secam only!]

The signal sequence for the EE mode with FBAS input signal and YC output only differs from the recording signal path from pin 6 of IC [7270] onwards. From pin 6, the 4.43 MHz signal travels for further processing in the CF circuit component via the parallel oscillation circuit [5348, 2348] and the impedance converter and/or switch [7348].

14.4 Playback

The unregulated FM tape signal (FM-UNC) from the HC circuit component enters the SH circuit component via the CF circuit component. From here, it runs through the band-pass filter [2823...2826], filtering out the 627 kHz chroma signal. The subsequent transistor stages [7807 and 2708] amplify the signal. From this point, only the 627 kHz signal is passed to the chrominance circuit component (SF). The signal path then splits into a direct [3167] and a delayed signal path [2164]. The latter consists of a CCD delay line [7175], the low pass filter [5176, 2180], the phase shift [all pass], the inverter stage [7190] and the switching stage [7192, 7196]. These two signal paths form what is known as a "comb filter" for cross-talk compensation.
The function of a comb filter is to delay the signal by 2 lines for PAL and by one line for NTSC in a switching branch, and to add it to the non-delayed signal. In this case, the playback signal is delayed between [7175-(1)] and [7175-(3)]. It then runs through low pass [5176/2180] and a phase shift [all pass], in which the voltage of the delayed signal is set with [2184] and [3184] in the phase, thus initialising the inverter stage [7190]. This results in a signal that is phase shifted by 180° at the collector, which enables the signal to be subtracted from the direct signal in the event of a half-picture. For addition, the signal is taken directly from the base of the inverter. The signal, which is controlled by the HI chroma pulse (CROT), travels via switch transistors 7192/7196 to the adjuster [CF = comb filter] [3167], with a 0° phase, and, after switching over, with a 180° phase. At this stage, the delayed signal is added to the direct signal.
The CCD line [7175] is clocked at 1fsc for PAL, thus resulting in a 2-line delay. For NTSC, the CCD line is clocked with 2fsc, resulting in a delay of one line.

During the MESECAM operation, the delayed signal path is bypassed. The 627 kHz chroma signal thus arrives at the adjuster [CF] via [Y7026], where the two direct signals are added. The [Y7026] is controlled by the shift register with the control voltage +SOST.
The 627 kHz chroma signal arrives at IC [7270 -(15)] from the adjuster [CF] via emitter follower 7166. From here, it enters the main mixer [MAIN BM] via a REC/PB switch, a regulated amplifier [ACC AMP], and pins 6 and 7. The signal is then mixed with the 5.06 MHz sub-carrier frequency. The retrieved chroma signal [4.43 MHz] then passes to the external 4.43 MHz band-pass filter [1025] and pin 17 to IC [7270] via a REC/PB switch [SW2] and pin 5. In MESECAM, it then arrives directly at the PAL/SECAM switch. In PAL//NTSC, it leaves the IC [7270-(47)] after passing through a 4 dB amplifier and arrives at the PAL/SECAM switch via an external trap [1023/2256], IC [7270-(45)] and a comb filter driver [COMB]. It then runs through a playback amplifier with a colour killer and a pilot burst sensor. It leaves IC [7570] at pin 42 and enters the colour standard converter [7200-(14)] via emitter follower [7220]. For NTSC playback ON-PAL-TV, a quasi-PAL signal is generated from this. No standard conversion takes place in PAL and MESECAM playback. The control for this runs via pin 13. The signal then leaves [7200] at pin 11 and is passed via the emitter follower [switch] [7234] to the CF circuit component for further processing.

14.5 Carrier preparation

- Recording [PAL]

A voltage-controlled crystal oscillator [VCXO] in IC [7270] is used for carrier preparation, the oscillator frequency [4.433619 MHz] of which is determined by the crystal [1030] connected at pins 30 and 32. The APC detector REC compares the phase of the incoming transmitter burst with that of the VCXO, adjusting it accordingly. This regulation voltage at IC [7270-(28)] is smoothed with [2399, 2300] and [3300]. An oscillator [321 fH VCO] integrated in IC [7270] is also used, the middle frequency of which is determined by the parallel oscillation circuit at pin 20. This oscillator is controlled by the line frequency. The VCO oscillates at a multiple of the line frequency (321 fH = 5.015625 MHz). This frequency is divided by 8 [rotary] in a decrementer and is routed to the sub-mixer [SUB BM]. Here, it is mixed with the oscillator frequency of the VCXO [4.433619 MHz]. This results, amongst other things, in the 5.06 MHz sub-carrier. This passes through an external 5.06 MHz band-pass filter [between pins 36 and 1] and then enters the main mixer [MAIN BM].

- Playback [NTSC/PAL]

For playback, the XO crystal oscillator [VCXO], oscillating freely on the crystal frequency (4.433619 MHz), and the 321 fH VCO oscillator, the middle frequency of which is determined by the parallel oscillation circuit at pin 20, are used as a reference. The VCO is then synchronised from the burst of the played back colour signal after the chroma signal is remixed from 627 kHz to a 4.43 MHz colour-carrier frequency. For this, the PB-APC stage (APC DET PB) produces the regulating voltage for the VCO and compares the phase of the re-mixed 4.43 MHz burst with that of the crystal oscillator. The time constant of the filter at IC [7270-(27)] is provided by [2297, 2296] and [3296]. This frequency is divided by 8 in the decrementer [1/8] [rotary] and enters the sub-mixer [SUB BM]. It is then mixed with the oscillator frequency of the XO. This results in, amongst other things, the sub-carrier of 5.06 MHz. The latter enters the main mixer [MAIN BM] via an external band filter [as in recording].

15. Operating part (Display Control)

15.1. Front Controller

The mask-programmed 8-bit microcontroller [7060] (Front Controller, FC) on the DC board operates as a sub-controller. It activates various function groups on the DC board and the local front keyboard board and evaluates their signals. The correct operation of the FC requires a functioning communication with the Central Controller (CC) [7035] on the motherboard. The FC is physically connected to the motherboard via connector [1510]. The communication is serial and bi-directional with a TTL level via a modified three-line-I2C-Bus by lines SCL (port P3.6/pin 23), SDA (P3.7/pin 24) and Bus-Init (P1.1/pin 2). At SCL and SDA, the signals are standard I2C-Bus signals. The Bus-Init line transmits a decreasing slope as starting condition for a Multimaster-I2C-Bus communication between the CC and the FC in the High-Speed

mode. In the Normal operating mode, the ceramic 8 MHz resonator [1060] functions at inputs XIN/XOUT (pin 13/14) and the 32,768 kHz crystal [1062] at inputs XTIN/XTOUT (pin 10/11).
The system cycle is thus 8 MHz. In the LOW-POWER and Mains-Off operating modes, only the crystal is active. The system cycle is 32,768 kHz in this case.
A defined reset of the FC can be triggered by a LOW pulse at pin 12 of the FC. The generation of the pulse is controlled by IC [7019] on the motherboard. A LOW pulse is transmitted to the circuit group around transistor [7050] via pin 10 of connector [1510], where the rising slope of the pulse generates a LOW level at pin 12 of the FC for approx. 1 msec.

The functions of the FC and the circuit groups arranged on the DC board/flap board are as follows:

- Activate the VFD display
- Determine and control the operating mode of the entire unit
- Adjust the clock cycle
- Receive and decode IR remote control signals
- Query the functional keys
- Activate various LEDs
- Monitor and control the backup system
- Reset and interrupt control
- Various input sockets

15.2. Control and supply of the VFD display

The VFD display is, in principle, a tube triode, with the heating filaments of the tube forming the cathode.
The digits and symbols are triggered by a time-multiplexing process (duty 1:16, scanning period 3.9 ms (16 x 244.14 µs), voltage range +5V / -28 V). A dimmer function is provided by pulse width modulation of the grid activation signals. During maximum display brightness, the pulse width for each grid is 214 µs. With the use of software, the width can be reduced to 30 µs in 7 stages, reducing the brightness of the VFD for the naked eye accordingly.

A display digit or symbol only illuminates, if the corresponding anode and its surrounding grid are switched to +5 V for a certain time during the scanning period. The electrons emitted by the cathode are thus accelerated by the positively charged grid and come into contact with the luminous layer of the anode which is also positively charged.
During the remainder of the scanning period, the corresponding grid is at -28 V, due to an internal pull-down resistor in the FC. As this potential is lower than the average cathode potential of approx. -21 V, an acceleration of electrons is avoided, thus providing a certain dimming of the associated anode segments.
The filament voltage for the VFD filament (U~ = 6.5Veff , f = 31.25kHz) is applied by the power supply to pins F1 and F2 of the VFD display via lines HELO and HELI (connector [1510/- 13 and -11]). The Z diode [6070] fixes the alternating filament voltage to approx. -21 Volt via resistor [3074]. Directly in between pins F1 and F2, the alternating filament voltage is approx. 4.1 Veff due to resistors [3073] and [3075].

15.3. Activation of the power supply and clock adjustment

The FC applies two control signals to the power supply.
In the first instance, the FC causes the power supply to generate the filament voltage for the VFD display (see section 2). For this purpose, the FC provides a control signal with a frequency of 31.25kHz via port P5.5/pin 80. This control signal is passed to the power supply via the HEST line at socket [1510/-1] and transistor [7011] on the motherboard. The associated circuit group supplies the filament voltage to the DC board and therefore the VFD display via the HELO and HELI lines. In the LOW-POWER and Mains-Off operating modes, port P5.5 has a HIGH level. No filament voltage for the VFD display is provided.
The HEST line and thus port P5.5 can emit a square wave signal with Fsoll = 2048 Hz in the service mode. The clock adjustment can be carried out with a variable capacitor [2060] and a frequency meter connected to port P5.5. Secondly, the FC is also able to switch the power supply to the "Low Power" operating mode via the STBY line (connector [1510/-14]). In this mode, the power supply only supplies the 5STBY operating voltage, reducing the energy consumption to a few 100mW. The Low Power mode is therefore also called <1-watt mode.
A change to the Low Power Mode is activated by the level of P5.4/pin 79 changing from HIGH to LOW. Transistor [7010] becomes conductive as a result of the level change. The collector and thus contact 14 of the connector [1510] contain a HIGH level. The HIGH level is passed to the associated circuit group of the power supply, changing it to the desired Low Power mode.

15.4. IR receiver and signal evaluation

The IR operating voltage is only available in the "Normal" operating mode. In addition to a photodiode, the IR receiver [7035] contains a selective controlled amplifier. The photodiode converts the radiation (approx. 940 nm) into electrical pulses which are then amplified and demodulated. The output signal of the IR receiver is read in as a TTL level pulse train via the interrupt input INT3/P3.0 (pin 17) of the FC. By evaluating the pulse train, the FC recognises the command emitted by the IR remote control and carries out the instructions linked to this command.

15. 5. Keypad (keys)

A keypad input is only possible when the FC is in the Normal-2 mode. Output ports P9.5 to P9.7 [pin 63-65] of the FC are assigned a HIGH level (+5 V) for 40 µs at different times. These signals are either applied to the keys directly or via the connector contacts [1516/4 and -/5]. When a key is depressed, the FC reads in one HIGH level during each keyscan period (16,384 ms) either directly or via connector [1516/1-3] and the associated input ports P40/KEY0 to P43/KEY3 (Pin 67-70). If no key is depressed, the inputs via the internal pull- down resistors of port P4 are at LOW level (0 V).

15. 6. Shuttle (optional)

The shuttle is a binary-encoded rotary switch with a _70_ rotating angle and 16 switching conditions. A spring returns the switch into its centre position once released, from which 7 to 8 further switching conditions can be activated on either side. All switching conditions are implemented with voltage 5D1 by different connections of the four different shuttle outputs SHA-SHD. The levels of outputs SHA-SHD are passed via the plug-in contacts [1515/-1...4] to the input ports P3.2 - P3.5. If the SHA-SHD outputs are not at HIGH level, the relevant ports are at LOW potential via the external pull-down resistors [3080, 3081, 3083 u. 3084]. The FC evaluates the supplied levels and starts the corresponding actions.

15. 7. Jog (optional)

The Jog on the PDC GN 12 board contains a continuously rotatable pulse generator without earth connection. The generator contains ten latching positions per revolution and two outputs, supplying two square wave signals that are phase-displaced to one another with a level of 0 V or 5 V when turning the Jog. Upon turning the Jog, the operating voltage 5D1 at connector [1515/-9] is connected in sequence with outputs JOG-A and JOG-B, depending on the rotary direction.
The square wave signals generated in this way are passed to the PDC GN 1b board via pins 8 and 10 of connector [1515]. The signals are then debounced by the RC elements [3078, 3079, 2078 or 3076, 3077, 2077] and provided to the FC via ports P4.4/pin 71 and P4.5/pin 72 for evaluation.
The associated Interrupt-Service routine of the FC can detect the rotary direction (left/right) of the Jog from the characteristic phase displacement of the two signals (JOG-A HIGH, JOG-B LOW or vice versa).

15. 8. FBAS detection (Scart control)

The FC, and thus the entire unit, can be changed from the LOW-POWER mode to Normal mode by a defined level change at port P2.0/pin16. The activation of a TV set can be detected via a Scart line connected to the recorder. In this case, the detection circuit identifies a FBAS or a noise signal. The SCART-CONTROL line at connector [1510/4], which is HIGH active in the release state, is pulled down to LOW level. Port P2.0 of the FC thus also contains a LOW level. The FC detects the level change and returns the power supply to the Normal mode by a HIGH level at port P5.4.
Once the LOW-POWER mode of the power supply has been activated by pressing the ON/OFF key on the remote control or on the DC board, the power supply remains in the LOW-POWER mode

even if the TV remains switched on. Only after the level on the SCART-CONTROL line has been changed from LOW to HIGH by switching off the TV set, can the power supply be switched on by another level change from HIGH to LOW.
To suppress interference on the SCART-CONTROL line, the FC only reacts to a falling slope at port P2.0, if at least 2s have passed since the rising slope.

15. 9. Backup-System

The Goldcap capacitor [2019] on the motherboard secures the operating voltage and function of the FC even in the Mains-Off mode in case of disconnection from the mains via resistor [3024] (2.2kW) and the 3VB connector line [1510/16]. In the LOW-POWER mode, the FC is supplied by the 5VSTBY supply voltage. At the same time, the capacitor is charged via line 3VB and resistor [3024]. In Normal mode, the capacitor is charged directly by the operating voltage 5A1 and diode [6066]. With the capacitor fully charged, correct functioning of the FC can be guaranteed for at least 7 hours in case of disconnection from the mains. If the mains voltage is recovered within this defined backup time, the time and date registers are maintained. If the mains voltage is recovered after expiry of the backup time, the relevant time and date registers are overwritten with a defined fault code. The set is in Normal mode after applying the mains voltage and the capacitor is charged. The charging via diode [6066] is instant and, even in the case of an immediate, repeated disconnection, a full 7 hours of backup time is guaranteed.

15.10. Reset and Interrupt control

The RESET switching stage of transistor [7055] facilitates an exact control of the FC during the transition between the various modes. This is achieved with precisely defined levels or level changes on input port INTO (P1.0/pin 1) and the reset input (pin 12) of the FC.

Transition from the Mains-Off operating mode to the Normal or LOW-POWER operating mode:

If the FC is supplied by the backup capacitor [2019] during Mains-Off, the FC operates in energy-saving Sleep-Slow mode. If, however, the backup time was exceeded in the Mains-Off mode, the FC operates in the Stop mode. In both modes, all ports are in a TRISTATE condition. Once the mains voltage is reapplied, the mains part immediately enters Normal mode and all operating voltages are generated. The CC on the motherboard is consequently reset. The CC then activates a reset of the FC (FC RESET) via the shift register [7019] on the motherboard. Consequently, a voltage of approx. 4.4 V is generated on the cathode of diode [6052] after the level change. The capacitor [2050] is charged via resistor [3053] and the series connection of resistor [3055] with the base emitter route of transistor [7055]. Transistor [7055] becod on the STBY line and the power supply changes to the Normal mode. The CC is reset, followed by the operations detailed in the previous chapter.

Transition from the Normal to the LOW-POWER operating mode:

By pressing the Standby key on the DC board or the remote control, the FC initially changes to Slow mode because of a command issued by the CC. The FC then generates a LOW level at port P54/pin 79, changing the power supply to the LOW-POWER mode. The 5VSTBY voltage supplies the FC and only the 32,768ke. During this operating mode, inputs INT0, P1.2 and Reset (pin 1, 2 and 12) of the FC are each at HIGH level.

Transition from the LOW-POWER to the Normal operating mode:

In the LOW-POWER operating mode, the power supply is maintained in the Standby mode. To achieve this, the port P5.4/pin 79 of the FC is at LOW level. This causes a HIGH level at the collector of transistor [7010]. Line STBY at the plug-in contact [1510/-14] is consequently also at HIGH level. The level passes to the power supply, maintaining it in the desired mode. The energy supply of the FC is provided by the 5VSTBY voltage. The FC itself is in Slow mode. In order to detect whether a transition to the Normal operating mode is to be made, the FC monitors ports P0.0/pin 25 and P2.0/pin 16. Upon activation of the ON/OFF button (change LOW->HIGH), or in case of a positive FBAS detection (change HIGH->LOW), a level
change takes place. The FC switches port P5.4 to the TRISTATE condition. The transistor [7010] blocks; a LOW level is generated on the STBY line and the power supply changes to the Normal mode. The CC is reset, followed by the operations detailed in the previous chapter.

Transition from the Normal to the LOW-POWER operating mode:

By pressing the Standby key on the DC board or the remote control, the FC initially changes to Slow mode because of a command issued by the CC. The FC then generates a LOW level at port P54/pin 79, changing the power supply to the LOW-POWER mode. The 5VSTBY voltage supplies the FC and only the 32,768kHz crystal is active. At the same time it detects a HIGH level via port P1.2/pin 3, due to the 5VSTBY voltage, and remains in Slow mode. A level change at pin 1/INT0 has no effect during this operating mode change.

Transition from the LOW-POWER to the Mains-Off operating mode:

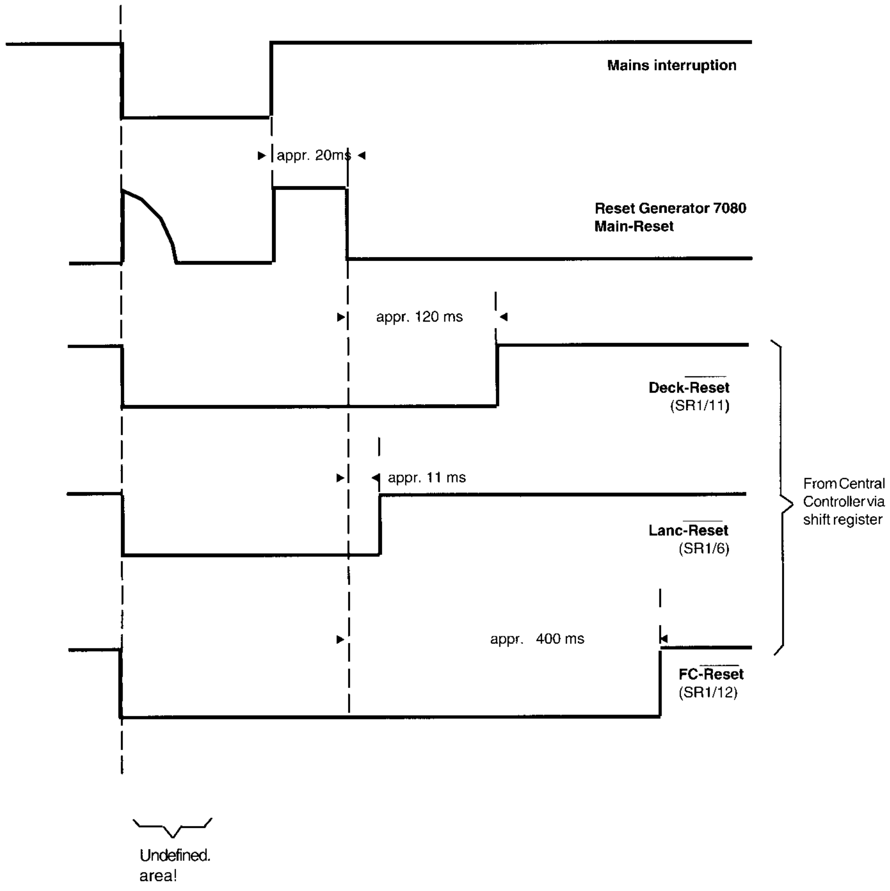
Once disconnected from the mains, the mains supply no longer provides an operating voltage. A LOW level is thus generated at port P1.2/pin 3 of the FC. The FC changes from Slow to Sleep-Slow mode. All FC ports gain a high-resistance. The energy is supplied by the backup capacitor [2019]. The clock and calendar functions of the FC are maintained during the backup period.

Transition from the Normal to the Mains-Off operating mode:

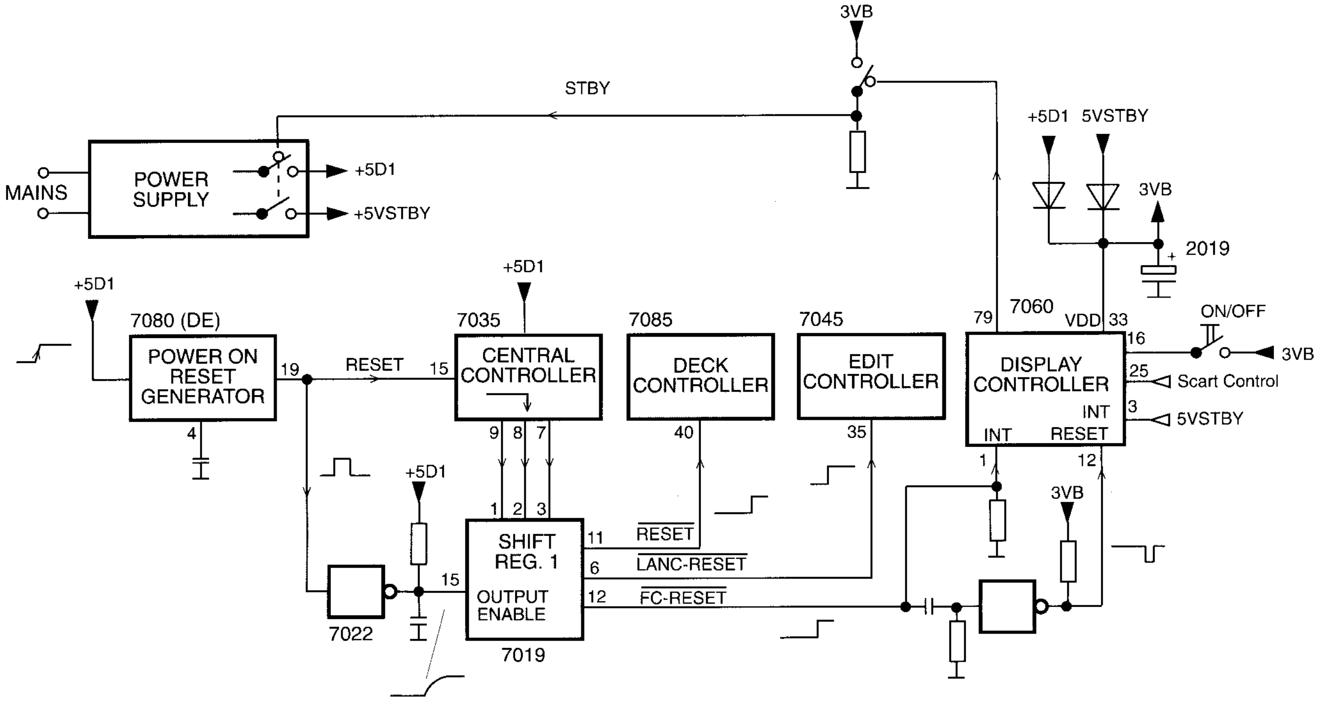
A mains disconnection is carried out in the Normal mode. The detection circuit on the motherboard detects a decreasing 5D1 operating voltage. On the FC-RESET line, and consequently at port P1.0 of the FC, a decreasing slope is generated via IC [7019] and the pull-down resistor [3049]. The FC detects this level change and switches immediately to Sleep-Slow mode. The backup capacitor [2019] supplies the FC.

15.11. Input sockets

An external video or audio signal can be fed into the recorder via the three Chinch sockets [1902] for further processing. Via the Edit socket [1900] a re-recording process can be controlled with a camera. For this purpose, the EDIT-TRIGGER and PREROLL signals are passed via socket [1900] and the plug-in contacts [1510/ - 9 and -/7] to the motherboard for further processing.

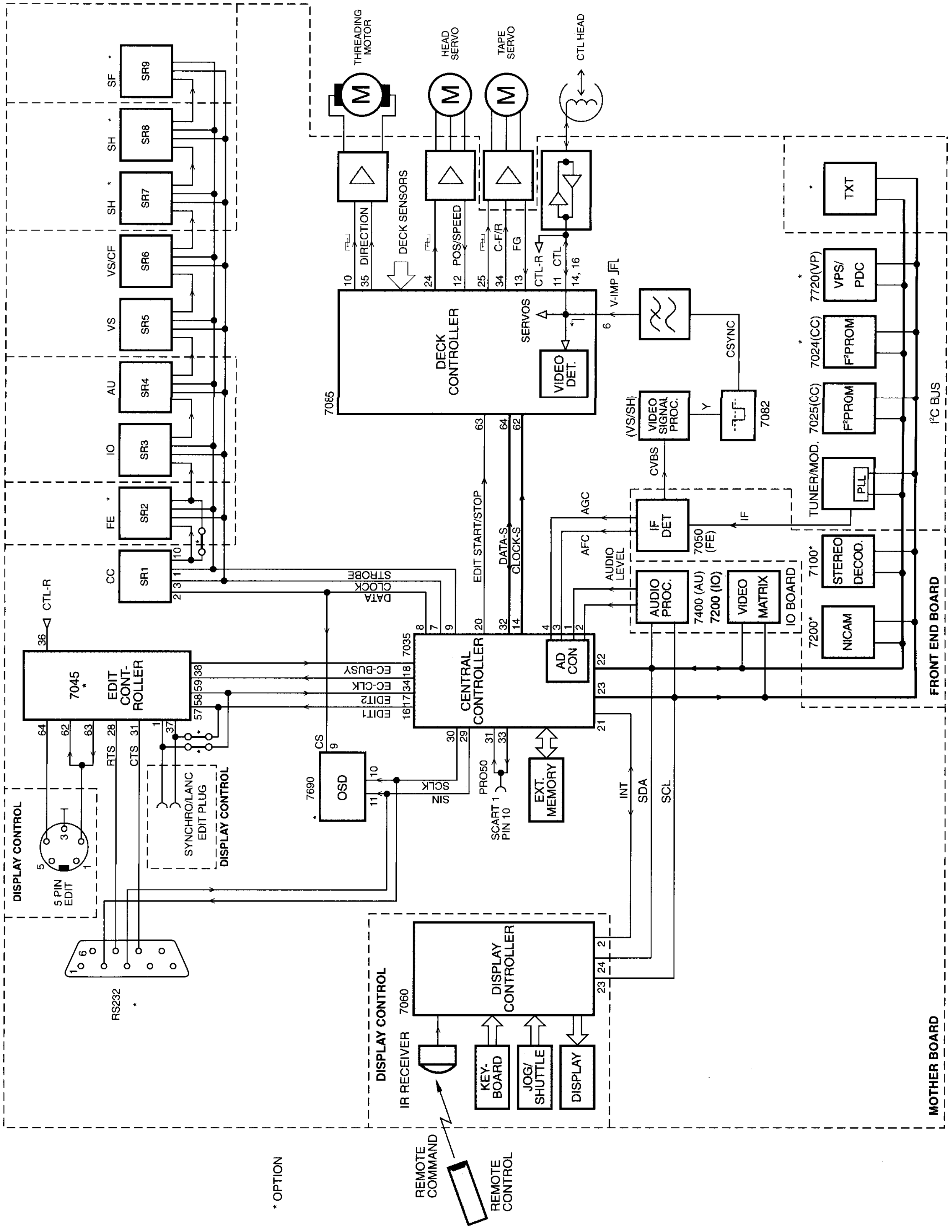

Mains interruption
appr. 20ms
Reset Generator 7080
Main-Reset
appr. 120 ms
Deck-Reset
(SR1/11)
appr. 11 ms
Lanc-Reset
(SR1/6)
appr. 400 ms
FC-Reset
(SR1/12)
From Central Controller via shift register
Undefined.
area!

Reset Generation


3VB
STBY
+5D1
5VSTBY
MAINS
POWER SUPPLY
+5D1
+5VSTBY
3VB
2019
+5D1
+5D1
7080 (DE)
POWER ON RESET GENERATOR
4
19
RESET
15
7035
CENTRAL CONTROLLER
9
8
7
7085
DECK CONTROLLER
40
7045
EDIT CONTROLLER
35
79
7060
VDD
33
DISPLAY CONTROLLER
16
ON/OFF
3VB
25
Scart Control
INT
3
5VSTBY
INT
RESET
1
12
3VB
+5D1
1
2
3
SHIFT REG. 1
15
OUTPUT ENABLE
11
RESET
6
LANC-RESET
12
FC-RESET
7022
7019

Reset Generation

17. Block Diagram Control


THREADING MOTOR
HEAD SERVO
TAPE SERVO
CTL HEAD
M
DIRECTION
DECK SENSORS
POS/SPEED
C-F/R
FG
CTL-R
CTL
10
35
24
12
25
34
13
11
14, 16
DECK CONTROLLER
SERVOS
VIDEO DET.
7065
V-IMP
6
CSYNC
7082
Y
VIDEO SIGNAL PROC.
(VS/SH)
CVBS
IF DET
7050 (FE)
AGC
AFC
IF
AUDIO LEVEL
AUDIO PROC.
7400 (AU)
7200 (IO)
VIDEO MATRIX
IO BOARD
TXT
VPS/ PDC
7720(VP)
F²PROM
7024(CC)
7025(CC)
TUNER/MOD.
PLL
I²C BUS
STEREO DECOD.
7100*
NICAM
7200*
FRONT END BOARD
SF
SR9
SH
SR8
SH
SR7
VS/CF
SR6
VS
SR5
AU
SR4
IO
SR3
FE
SR2
CC
SR1
STROBE
CLOCK
DATA
EDIT START/STOP
DATA-S
CLOCK-S
63
64
62
20
32
14
8
7
9
4
3
2
CENTRAL CONTROLLER
7035
AD CON
22
23
21
EC-BUSY
EC-CLK
EDIT2
EDIT1
18
34
17
16
38
59
58
57
7045 *
EDIT CONT- ROLLER
36
CTL-R
64
62
63
28
31
1
37
RTS
CTS
SYNCHRO/LANC EDIT PLUG
DISPLAY CONTROL
5 PIN EDIT
DISPLAY CONTROL
RS232
CS
9
OSD
7690
10
11
SCLK
SIN
30
29
31
33
PRO50
SCARTl 1 PIN 10
EXT. MEMORY
INT
SDA
SCL
DISPLAY CONTROLLER
7060
2
24
23
IR RECEIVER
KEY- BOARD
JOG/ SHUTTLE
DISPLAY
DISPLAY CONTROL
MOTHER BOARD
REMOTE COMMAND
REMOTE CONTROL
* OPTION

PRINTED CIRCUIT BOARDS

Electrical Alignment Instructions

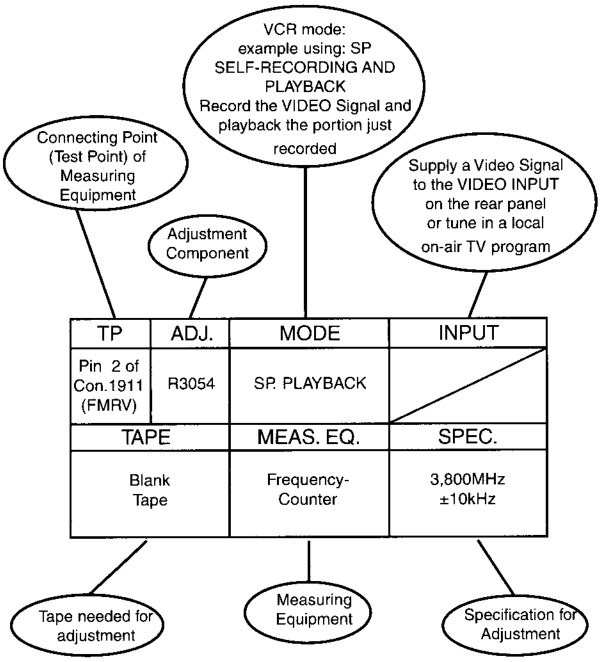
Measuring Equipment:

1. Two-channel oscilloscope

Voltage range	: 0.001 ~ 50 V/div
Frequency	: DC ~ 50 MHz
Probe	: 10:1, 1:1

2. Digital voltmeter (DVM)
3. AF millivoltmeter
4. Frequency counter
5. Sinus generator
   Sinus : 0 ~ 50 MHz
6. Test pattern generator with stereo modulation
7. VHS Alignment Tape 4822 397 30103
   SPC Alignment Tape 4822 397 30268

Explanation of Alignment Instructions:


VCR mode: example using: SP SELF-RECORDING AND PLAYBACK Record the VIDEO Signal and playback the portion just recorded
Connecting Point (Test Point) of Measuring Equipment
Adjustment Component
Supply a Video Signal to the VIDEO INPUT on the rear panel or tune in a local on-air TV program
Tape needed for adjustment
Measuring Equipment
Specification for Adjustment

TP	ADJ.	MODE	INPUT
Pin 2 of Con.1911 (FMRV)	R3054	SP. PLAYBACK	
TAPE		MEAS. EQ.	SPEC.
Blank Tape		Frequency-Counter	3,800MHz ±10kHz

⊕ ... Cinch audio input

⊤ ... Aerial input

AV ... Euro AV socket (SCART)

The following symbol shows testing points in the circuits and component plans: ▽

1. Power Supply PSM (PS)

1.1 Setting the output voltage +5A:

Purpose: Setting the supply voltage to correct value.

Symptom if incorrectly set:
Incorrect operation of VCR functions.

TP	ADJ.	MODE	INPUT
1509-16; Ground at 1509-10	R3078	Playback	
TAPE		MEAS. EQ.	SPEC.
Any tape		DC Voltmeter	5,3V ±0,05V

2. Frontend End Board (FE) / Mother Board Tuner/Modulator (TM)

Service operations after replacing

– the Mother Board:	2.2, 2.4, 2.5
– the FE Board:	2.2, 2.4, 2.5
– IC 7050:	2.1, 2.2, 2.4, 2.5, 2.6 (SECAM L), 2.7
– IC 7100:	2.4
– the Tuner/Modulator:	2.2, 2.5

2.1 Picture demodulation circuit(AFC-ADJ)

Purpose: Correct setting of demodulator AFC circuit.

Symptom if incorrectly set:
Bad or disturbed reception of TV stations.

TP	ADJ.	MODE	INPUT
83 [1624/3]	AFC-ADJ 1040	E to E	38.875MHz, test picture, TP 82 (FE) [1624/10]
TAPE		MEAS. EQ.	SPEC.
		DC Voltmeter, Video Pattern Generator	2,5V ± 0,1V

2.2 RF AGC take over point (AGC-ADJ)

Purpose: Setting the RF-AGC take-over point.

Symptom if incorrectly set:
AGC does not synchronise correctly if input level is too weak. Input levels which are too strong, may cause picture interference.

Before adjustment ensure that

- unit is warmed up.
- capacitor 4.7 pF is soldered to TP 82 [1624/10]

TP	ADJ.	MODE	INPUT
82 via 4.7pF capacitor	AGC-ADJ R3800 on (TM)	E to E	⊤ 2,2mV (67dB$_{\mu V}$) PAL, CH26 (511.25), audio IF on, no audio modulation
TAPE		MEAS. EQ.	SPEC.
		Oscilloscope Video Pattern Generator	100mV$_{pp}$ (use a 10:1 probe)

2.3 Chroma amplitude adjustment (CHR-ADJ)

Purpose: Adjustment of optimum Chroma amplitude.

Symptom if incorrectly set:
Possible reduced colour quality.

Before adjustment ensure that

– unit is warmed up.

TP	ADJ.	MODE	INPUT
85 [1624/5]	CHR-ADJ 3159	E to E	┐┌ 2,2mV (67dB$_{\mu V}$) PAL, CH26 (511.25) audio modulation off
TAPE		MEAS. EQ.	SPEC.
		Oscilloscope Video Pattern Generator	refer to description below

– Adjust burst amplitude to match Sync pulse size with 3159

2.4 Stereo decoder crosstalk

Purpose: Prevent crosstalk of AF channels.

Symptom if incorrectly set:
Crosstalk of AF channels.

Before adjustment ensure that

– service test program is activated (simultaneous activation of remote control STOP key and PLAY key on the recorder for 5 seconds).

TP	ADJ.	MODE	INPUT
84 [1625/7]	Service Mode	Service Mode	┐┌ Test picture, Stereo sound, i.e. l:3kHz, r: 1kHz
TAPE		MEAS. EQ.	SPEC.
		Oscilloscope Video Pattern Generator	minimum crosstalk, refer to description below

- Coarse adjustment: select step 55 of the service mode. Adjust with the "Up" or "Down" keys.
- Fine adjustment: select step 56 of the service mode. Adjust with the "Up" or "Down" keys.

The values will be stored in EEPROM 7025.

2.5 ATS threshold

Purpose: Setting the ATS threshold value for establishing the transmitter sequence according to the received field strength during automatic station search.

Symptom if incorrectly set:
Transmitters without VPS or PDC identification cannot be ordered in the best sequence.

Before adjustment ensure that

– service test program is activated.

TP	ADJ.	MODE	INPUT
	Service Mode	Service Mode	┐┌ 50dB$_{\mu V}$ PAL, CH26
TAPE		MEAS. EQ.	SPEC.
Any tape		Video Pattern Generator	Step 54, automatic adjustment

Values are stored in EEPROM 7025.

2.6 Picture demodulator circuit, SECAM band I (3047)

Purpose: Correct setting of demodulator AFC circuit.

Symptom if incorrectly set:
Bad or disturbed reception of TV stations.

TP	ADJ.	MODE	INPUT
83 [1624/3]	3047	E to E, SECAM L' tuned on this preset!	33.375MHz at TP 82 [1624/10]
TAPE		MEAS. EQ.	SPEC.
		DC Voltmeter, Video Pattern Generator	2,5V ± 0,1V

2.7 'Follow TV' amplitude (FMA) (optional)

Adjustment after replacing:
IC 7320 (VS), IC 7050 (FE)

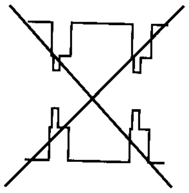
Purpose: Correct adjustment of Follow TV circuit.

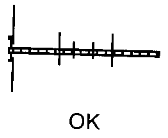
Symptom if incorrectly adjusted:
Incorrect functioning of Follow TV or Direct Record.

Before adjustment ensure that

– service test program is activated, Step 57

TP	ADJ.	MODE	INPUT
20 [7832/ Collector]	FMA R3849 on (TM)	Service Mode	1) ┐┌ >60dB$_{\mu V}$, 100% white, 2) AV 1, Testpicture 100% white, 1V$_{pp}$ (same generator)
TAPE		MEAS. EQ.	SPEC.
Any Tape		Oscilloscope Video Pattern Generator	refer to picture below





3. Mother Board SECAM (SE)

Service operations after replacing

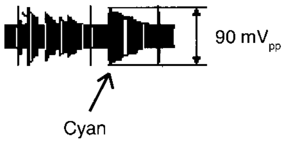
– the Mother Board: none

3.1 Chroma writing current (SCWC)

Purpose: Set optimum recording chrominance level.

Symptom if incorrectly set:
If the chrominance levels are too high, picture interference may occur; if the chrominance levels are too low, colour quality may be reduced.

TP	ADJ.	MODE	INPUT
91[7583/B] Trigger: Video Output	SCWC R3581	Record	SECAM Testpicture Colour Bar
TAPE		**MEAS. EQ.**	**SPEC.**
Any Tape		Oscilloscope Video Pattern Generator	refer to picture below



4. Mother Board VHS-Videosignal-Verarbeitung (VS)

Service operations after replacing:

– the Mother Board, the head disk, IC 7600: 4.4
– the IC 7320: 4.1, 4.2, 4.3

4.1 Luminance writing current (AY)

Purpose: To set the optimum recording luminance level.

Symptom if incorrectly set:
If the level is too high or low, picture interference may occur

TP	ADJ.	MODE	INPUT
52 [C2268]	AY R3479	Record	AV 1 100% white testpicture
TAPE		**MEAS. EQ.**	**SPEC.**
Any Tape		Oscilloscope Video Pattern Generator	300mV$_{pp}$

4.2 Chroma recording current PAL (CAP)

Purpose: To set the optimum recording chrominance level.

Symptom if incorrectly set:
If the level is too high, picture interference may occur; if the level is too low, colour quality may be reduced.

Before adjustment ensure that

– oscilloscope is applied to TP 52 [C2268], and white test picture to AV 1.
– measure value V_A is noted.
– TP 32 is connected to ground.

TP	ADJ.	MODE	INPUT
51 [C2187]	CAP R3387	Record	AV 1 red testpicture
TAPE		**MEAS. EQ.**	**SPEC.**
Any Tape		Oscilloscope Video Pattern Generator	$V_A / 2$

– Disconnect TP 32 from ground.

4.3 S-VHS Detection (REFS, REFV) (optional)

Purpose: Manual alignment of S-VHS recognition.

Symptom if incorrectly set:
During playback, the S-VHS or VHS status is not recognised correctly.

Before adjustment ensure that

– a 100% white test picture is applied to AV 1 and recorded.
– recording is played back.

TP	ADJ.	MODE	INPUT
1) 34, 35 2) 34, 36	1) REFS R3508 2) REFV R3503	Playback	
TAPE		**MEAS. EQ.**	**SPEC.**
Any Tape		DC Voltmeter, Video Pattern Generator	refer to description below

1)
– Measure voltage values at TP 34 [C2279]; value = V_{34S}.
– Set to V_{34S} + 0.35V with 3508 voltage at TP 35 [R3508].
2)
– TP33 (collector of 7280) is then connected to ground.
– Measure voltage values at TP 34; value = V_{34V}.
– Set to V_{34V} + 0.25V with 3503 voltage at TP 36 [R3503].
– Disconnect from ground.

4.4 Studio Picture Control SPC (optional)

Purpose: Setting the SPC reference level.

Symptom if incorrectly set:
Occasional picture loss or picture display at lower resolution than possible.

Before adjustment ensure that

- SPC alignment tape is inserted
- Call up service test program

TP	ADJ.	MODE	INPUT
		Stop Service Mode	⊤ or AV 1 grey or red Testpicture
TAPE		MEAS. EQ.	SPEC.
SPC Alignment Tape			Call up Step 52 of Service Mode

After calling up step 52, the recorder will make a SP recording (approx. 16s), rewind and start to play back the adjustment.
After the adjustment has been carried out, the VCR switches to STOP, displaying "READY" if the adjustment was successful, or "FAILED" if the adjustment was unsuccessful.

The adjustment values are stored in EEPROM 7025.

5. Mother Board Deck Electronics (DE)

Service operations after replacing

– the Mother Board, the head disc: 5.1

5.1 Head disk gap position

Purpose: Determining the head switch-over pulse during playback.

Symptom if incorrectly set:
Head switch-over faults and/or vertical picture flickering.

Before adjustment ensure that

- VHS alignment tape is inserted
- service test program is activated.

TP	ADJ.	MODE	INPUT
		Service Mode	
TAPE		MEAS. EQ.	SPEC.
VHS Alignment Tape			Call up Step 51 of Service Mode

After a successful adjustment, the recorder automatically switches to the STOP mode and displays "READY".

An unsuccessful adjustment may be due to:
an incorrect standard video signal
a defective scanner
a defective microprocessor

The adjustment values are stored in EEPROM 7025.

6. Mother Board On Screen Display (OS)

Service operations after replacing:

– the Mother Board: -
– 7690, 1108, 2695, 2697, 2698: 6.1
– 7690, 1104, 2692, 2694: 6.2

6.1 OSD Crystal oscillator (OSD-SC)

Purpose: Adjusting the exact quartz frequency

Symptom in case of incorrect adjustment:
Incorrect functioning of the OSD

Before adjustment, the following preparations are required:
Connect pin 23 (reset) of IC 7690 to earth.

TP	ADJ.	MODE	INPUT
9 [7690/5]	C2695	E-E	
TAPE		MEAS. EQ.	SPEC.
		Frequency counter	17 734 475 Hz ± 50 Hz

- Remove short circuit
- To initialise, switch recorder off and on again

6.2 OSD LC-Oscillator (OSD-LC)

Purpose: Adjusting the letter width and position

Symptom in case of incorrect adjustment:
Incorrect letter width and position

Before adjustment, the following preparations are required:
Connect pin 23 (reset) of IC 7690 to earth.

TP	ADJ.	MODE	INPUT
10 [7690/8]	1104	E-E	
TAPE		MEAS. EQ.	SPEC.
		Frequency counter	6.6 MHz ± 0.1 MHz

- Remove short circuit
- To initialise, switch recorder off and on again

7. In/Out Board Audio (AU)

Service operations after replacing:

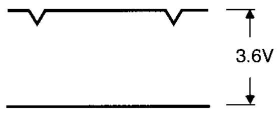
– the head disk: 7.1, 7.2
– the In/Out Board: 7.1, 7.2, 7.3, 7.4
– the IC 7400: 7.1, 7.2
– the combi-head: 7.3, 7.4 + electro-mechanical adjustment (chapter 4)

7.1 FM envelope voltage (FME)

Purpose: Setting the frequency deviation.

Symptom if incorrectly set:
Incorrect deviation during recording.

TP	ADJ.	MODE	INPUT
22 [1637/3]	FME R3485	Playback	
TAPE		MEAS. EQ.	SPEC.
VHS Alignment Tape, FM Audio section		Oscilloscope	3.6V_{pp} refer to picture below



7.2 Sound envelope voltage (AEL, AER)

Purpose: Setting the IC amplification control.

Symptom if incorrectly set:
Sound is recorded too low, i.e. the signal-to-noise-ratio is too low or overmodulated.

Before adjustment ensure that

- 400 mV_{rms} is fed to Cinch input ⊕.
- the service test program is activated, Step 61, Step 61

TP	ADJ.	MODE	INPUT
23 & 24 [1637/ 7&6]	AEL, R3408 AER, R3410	Service Mode 61	⊕ 400mV_{rms} , 1kHz
TAPE		MEAS. EQ.	SPEC.
Any Tape		Oscilloscope	1.4V

Set values are stored in EEPROM 7025.

7.3 Bias current (BIAS)

Purpose: Setting the optimum bias current for recording.

Symptom if incorrectly set:
If the level is too high, the frequency response deteriorates, if it is too low, harmonic distortion increases.

TP	ADJ.	MODE	INPUT
25 [1505/3]	BIAS R3645	Record	
TAPE		MEAS. EQ.	SPEC.
Chromium Dioxid Tape		Oscilloscope with probe 10:1, Sinus Generator	22mV_{pp}...62mV_{pp}

Controlling the bias setting:

- Feed 5 mV_{rms} (14 mV_{pp}) audio signal from sinus generator to Cinch input (⊕ rear of unit).
- Record for 1 minute at 400 Hz and 8 kHz onto a brand name chromium dioxide tape.
- Playback the recording.
- Connect AF millivoltmeter (oscilloscope) to contact 1/3 of AV1 or to Cinch output (⊖ rear of unit).
- The voltage ratio must not exceed ±3dB.

Increase playback voltage at 8 kHz: decrease bias.

7.4 Playback level

Purpose: Setting the playback level of the audio linear part.

Symptom if incorrectly set:
Playback too faint or overmodulated.

Before adjustment ensure that

- sinus is fed with 333 Hz; 0.4 V_{rms} to Cinch input ⊕.
- recording button is activated.
- service test program is activated, Step 58

TP	ADJ.	MODE	INPUT
	Service Mode	Service Mode	
TAPE		MEAS. EQ.	SPEC.
Chromium Dioxid Tape		Sinus Generator	Step 58, automatic adjustment

The adjustment values are stored in EEPROM 7025.
In case of an incorrect adjustment with the voltage difference between linear audio and FM audio being > 1 dB, "LIN ERR" appears on the display, i.e. the audio linear switching part is faulty.

8. Display Control (DC)

Service work after replacement:
- of the quartz clock: 8.1

8.1 Timer Clock Frequency (2060)

Purpose: Adjustment of the exact clock frequency

Symptom in case of incorrect adjustment:
The clock is too fast or too slow

Before adjustment, the following preparations are required:

- Call up the Service Test Program, select step 99.
  After the call up with select, the display dims and all functions and operations of the recorder stop!

TP	ADJ.	MODE	INPUT
[1921/16]	C2060	Service Mode, Step 99	
TAPE		MEAS. EQ.	SPEC.
		Frequency counter with 7 digits	2048.000Hz

- The adjustment must be terminated with a mains reset!

9. S-VHS Board Luminance Processing (SH)

Service work after replacement:
of the S-VHS Board: -

9.1 Recording Level (REC)

Purpose: To set the optimum luminance level during recording

Symptom in case of incorrect adjustment:
A level which is too high or too low results in interference.

TP	ADJ.	MODE	INPUT
6 [7700/14]	REC R3487	Record	AV 1 100% white testpicture $1V_{pp}$
TAPE		MEAS. EQ.	SPEC.
S-VHS Tape		Oscilloscope Video Pattern Generator	$400mV_{pp}$

9.2 EE-Level (EE)

Purpose: To set the optimum luminance level during recording

Symptom in case of incorrect adjustment:
A level which is too high or too low results in interference.

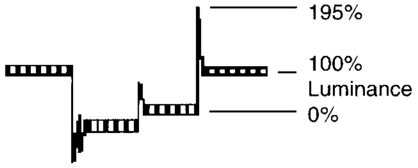
TP	ADJ.	MODE	INPUT
2 [7520/43]	EE R3637	Record	AV 1 100% white testpicture $1V_{pp}$
TAPE		MEAS. EQ.	SPEC.
S-VHS Tape		Oscilloscope Video Pattern Generator	$1V_{pp}$

9.3 White Clip (WC)

Purpose: To set the optimum white clip during recording

Symptom in case of incorrect adjustment:
A level which is too high or too low results in interference.

TP	ADJ.	MODE	INPUT
4 [7520/19]	WC R3515	Record, VHS, SP	AV 1 100% white testpicture $1V_{pp}$
TAPE		MEAS. EQ.	SPEC.
Any Tape		Oscilloscope Video Pattern Generator	refer to picture below

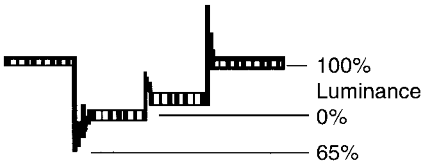


9.4 Dark Clip (DC)

Purpose: To set the optimum black clip during recording

Symptom in case of incorrect adjustment:
A level which is too high or too low results in interference.

TP	ADJ.	MODE	INPUT
4 [7520/19]	DC R3521	Record, VHS, SP	AV 1 100% white testpicture $1V_{pp}$
TAPE		MEAS. EQ.	SPEC.
Any Tape		Oscilloscope Video Pattern Generator	refer to picture below



9.5 VHS Synchronising Value (SV-VHS)

Purpose: To set the correct synchronising value during VHS recording

Symptom in case of incorrect adjustment:
The VHS standard is not maintained

TP	ADJ.	MODE	INPUT
3 [7520/25]	SV-VHS R3503	Record, VHS, SP	AV 1 no input signal
TAPE		MEAS. EQ.	SPEC.
Any Tape		Frequency counter	3.8 MHz

9.6 S-VHS Synchronising Value (SV-S-VHS)

Purpose: To set the correct synchronising value during S-VHS recording

Symptom in case of incorrect adjustment:
The S-VHS standard is not maintained

TP	ADJ.	MODE	INPUT
3 [7520/25]	SV-S-VHS R3509	Record, S-VHS, SP	AV 1 no input signal
TAPE		MEAS. EQ.	SPEC.
S-VHS Tape		Frequency counter	5.4 MHz

9.7 VHS White Value (WV-VHS)

Purpose: To set the correct white value during VHS recording

Symptom in case of incorrect adjustment:
The VHS standard is not maintained.

TP	ADJ.	MODE	INPUT
3 [7520/25]	WV-VHS R3507	Record, VHS, SP	AV 1 100% white picture
TAPE		MEAS. EQ.	SPEC.
Any Tape		Frequency counter	4.62 MHz

9.8 S-VHS White Value (WV-S-VHS)

Purpose: To set the correct white during S-VHS recording

Symptom in case of incorrect adjustment:
The S-VHS standard is not maintained.

TP	ADJ.	MODE	INPUT
3 [7520/25]	WV-S-VHS R3513	Record, S-VHS, SP	AV 1 100% white picture
TAPE		MEAS. EQ.	SPEC.
S-VHS Tape		Frequency counter	6.67 MHz

9.9 Luminance Recording Current (YWV)

Purpose: To set the optimum luminance level during recording

Symptom in case of incorrect adjustment:
A level which is too high or too low results in interference

TP	ADJ.	MODE	INPUT
52 [C2268]	YWV R3765	Record S-VHS	AV 1 100% white testpicture
TAPE		MEAS. EQ.	SPEC.
S-VHS Tape		Oscilloscope Video Pattern Generator	250mV$_{pp}$

9.10 Playback Amplitude

Purpose: To set the optimum luminance level during playback

Symptom in case of incorrect adjustment:
A level which is too high or too low results in interference

Before adjustment, the following preparations are required:
- Supply a 100% white test picture to AV 1 and record; VHS and S-VHS
- Play back the recording

9.10.1 VHS Playback Amplitude (PBA-VHS)

TP	ADJ.	MODE	INPUT
6 [7700/14]	PBA-VHS R3543	VHS Playback of own recording of white picture	
TAPE		MEAS. EQ.	SPEC.
VHS Tape		Oscilloscope Video Pattern Generator	400mV$_{pp}$

9.10.2 S-VHS Playback Amplitude (PBA-S-VHS)

TP	ADJ.	MODE	INPUT
6 [7700/14]	PBA-S-VHS R3545	S-VHS Playback of own recording of white picture	
TAPE		MEAS. EQ.	SPEC.
S-VHS Tape		Oscilloscope Video Pattern Generator	400mV$_{pp}$

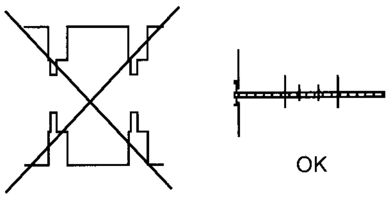
9.11 Drop Out Level (DP)

Purpose: To set the correct amplitude of the drop out correction signal

Symptom in case of incorrect adjustment:
Drop out compensation not operating correctly.

Before adjustment, the following preparations are required:
- Supply a 100% white test picture to AV 1 and record; VHS and S-VHS
- Play back the recording

TP	ADJ.	MODE	INPUT
7 [7520/12]	DP R3723	Playback of own recording	AV 1 100% white testpicture
TAPE		MEAS. EQ.	SPEC.
S-VHS Tape		Oscilloscope Video Pattern Generator	refer to picture below



9.12 S-VHS Detection (REFS, REFV)

Purpose: Manual alignment of the S-VHS detection

Symptom in case of incorrect adjustment:
During playback, the S-VHS or VHS status is not recognised correctly

Before adjustment, the following preparations are required:
- Supply a 100% white test picture to AV 1 and record in VHS
- Play back the recording

TP	ADJ.	MODE	INPUT
1) 37, 39 2) 37, 38	1) REFS R3791 2) REFV R3795	Playback of own recording	
TAPE		MEAS. EQ.	SPEC.
S-VHS Tape		DC Voltmeter, Video Pattern Generator	refer to description below

1)
- Connect pin 4 of IC7800 to ground and pin 5 to +5 V
- Measure voltage at TP 37 [1530/7] : value = V37S
- Using 3791, set voltage at TP 39 [1530/10] to V37S +0.35 V
- Remove short circuits

2)
- Connect pin 4 of IC7800 to +5 V and pin 5 to ground
- Measure voltage at TP 37 [1530/7] : value = V37v
- Use 3795 to set voltage at TP 38 [1530/11] to V37v +0.25 V
- Remove short circuits

9.13 Studio Picture Control

See 4.4

10. Transcoder Board Chrominance Processing (SF)

Service operations after replacement:

- of the transcoder board:	
- of IC7270:	10.1, 10.2, 10.3
- of IC7175:	10.4

10.1 VXO-Adjustment (XO)

Purpose: Adjustment of the sub-carrier frequency

Symptom in case of incorrect adjustment:
Colour faults

TP	ADJ.	MODE	INPUT
41 [1525/12]	XO C2306	Playback PAL	
TAPE		MEAS. EQ.	SPEC.
Any Tape		Frequency Counter	4.433619 MHz ± 20 Hz

10.2 Chroma Writing Current (CHSP)

Purpose: To set the optimum chrominance level during recording

Symptom in case of incorrect adjustment:
A level which is too high results in interference.
A level which is too low results in faint colours.

TP	ADJ.	MODE	INPUT
43 [1524/10]	CHSP R3273	Record	AV 1 colour bar PAL
TAPE		MEAS. EQ.	SPEC.
Any Tape		Oscilloscope Video Pattern Generator	red part: $150mV_{pp}$

10.3 Pilot Burst-Amplitude (PBA)

Purpose: To set the correct pilot burst amplitude during recording

Symptom in case of incorrect adjustment:
S-VHS standard is not maintained

TP	ADJ.	MODE	INPUT
43 [1524/10]	PBA R3295	Record S-VHS	AV 1 colour bar PAL
TAPE		MEAS. EQ.	SPEC.
S-VHS Tape		Oscilloscope Video Pattern Generator	Pilot Burst amplitude = 1.1 x PAL Burst amplitude

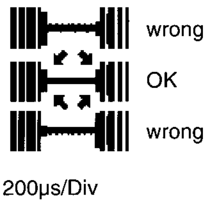
10.4 627 kHz Comb Filter (CF)

Purpose: To match the amplitude of the delayed and not delayed signal

Symptom in case of incorrect adjustment:
Colour faults

Before adjustment, the following preparations are required:
- Feed red signal (PAL) to AV 1 and record
- Play back the recording

TP	ADJ.	MODE	INPUT
42 [7166/E]	CF R3167	Playback, own recording, red picture	
TAPE		MEAS. EQ.	SPEC.
any Tape		Oscilloscope Video Pattern Generator	adjust vertical blanking, refer to picture below



(D) Hinweis zu den Bauteilen:

Verschiedene Bauteile sind mit einem 'X' oder mit einem 'Y' gekennzeichnet. Es handelt sich hierbei um Bauteile, die nicht in allen Gerätetypen enthalten, sondern vorgesehen (X) oder variantenbezogen sind (Y). Die variantenbezogenen Bauteile sind den Features zugeordnet (siehe Feature-Übersichten).

(F) Information sur les composants:

Certains composants sont identifiés par un 'X' ou un 'Y'. Il s'agit ici de composants qui ne sont pas montés dans tous les modèles d'appareils, mais de composants prévus (X) ou des variantes (Y). Les variantes de composants sont affectées aux diverses versions d'équipements (voir tableaux des versions d'équipements).

(E) Advertencia sobre los componentes:

Diferentes componentes estan marcados con una 'X' o con una 'Y'. Se trata de componentes no contenidos en todos los modelos de aparatos, sino sólo previstos (X) o variantes (Y). Los componentes relacionados con las variantes se encuentran referenciados en las Features (Ver indice de Features)

(GB) Note on the components:

Various components are marked with the letter 'X' or 'Y'. These letters are used to identify components which are not common to all types of recorders but either planned to be fitted (X) or used only in certain variants (Y). The components used for different variants are allocated to the features (see features lists).

(I) Nota sui componenti:

Diversi componenti sono contrassegnati con una 'X' oppure con una 'Y'. Si tratta di componenti che non sono presenti in tutti gli apparecchi, ma previsti (X) oppure varianti (Y). I componenti riferiti alle varianti sono associati alle varie caratteristiche (vedi elenco caratteristiche).

(NL) Aanwijzing voor componenten:

Verschillende componenten zijn met een 'X' of met een 'Y' aangegeven. Het gaat hierbij om componenten die niet in alle modellen aanwezig zijn, maar mogelijk zijn (X) of afhankelijk zijn van het type verwant (Y). De componenten die type afhankelijk zijn, zijn bij de Features aangegeven (zie hiervoor features overzicht).

(D) Schaltplansymbole / (GB) Circuit diagram symbols / (F) Symboles schema / (I) Simboli sullo schema / (E) Simbolos en los esquemas / (NL) Schema symbolen

Schaltplansymole für Video-/Chromasignale und Statusbefehle. Circuit diagram symbols for video signals, chroma signals and status commands./Symboles schema pour video / chroma et status de commandes./Simboli per segnali video, chroma e sitazioni di comando./Simbolos de señales de video y croma de los status de mando./Schema symbolen voor video-/ kleursignalen en status commandos.

Unterschiedliche Signale auf einer Leitung/Various signals on one lead/Signaux différents sur le même cable/Segnali differenti su una linea/Señales differentes en una conducción/Verschillende signalen op één leiding:

▭▯	Aufnahme / Record / Enregistrement / Registrazione / Grabación / Opname
U I/III	BD. I/III-Umschaltung / BD. I/III switch-over / Commutation bande I/III / Commutazione banda I/III / Conmutación banda I/III / BD.I/III omschakeling
▮▭	Wiedergabe / Playback / Reproduction / Reproduzione / Reproducción / Weergave
1.1MHz	1,1MHz-Signal(SECAM) / 1,1MHzSignal(SECAM) / Signal 1,1MHz (SECAM) / Segnale a 1,1MHz (SECAM) / Señal de 1,1MHz (SECAM) / 1,1 MHz signaal (SECAM)
16:9	Bildformat 16:9 / Aspect ratio 16:9/standard d`ecran 16:9/ standard di schermo 16:9/estandard de pantalla 16:9/ beeldformat 16:9
$2F_{SC}$	Doppelte Hilfsträgerfrequenz / Double subcarrier frequency / Frequence double de la sous-porteuse / Frequenza portante ausil. doppia / Doble frecuencia de portadora auxiliar / Dubbele subcarrier frequentie
4:3	Bildformat 4:3 / Aspect ratio 4:3/Standard d´ecran 4:3/ standard di schermo 4:3/estandard de pantalla 4:3/ Beeldformat 4:3
↘...	Optokopplerimpulse / Optocoupler pulses / Impulsions tachymetriques / Impulsi optoaccoppiatore / Impulsos tacométricos / Optocouplerpuls
▭	Rahmen / Frame / Cadre / Cornice / Marco / Frame

627 kHz	627kHz-Signal(PAL) / 627kHzSignal(PAL) / Signal 627kHz(PAL) / Segnale a 627kHz (PAL) / Señal de 627kHz (PAL) / 627kHz signaal (PAL)
⊥	Masse / Chassis / Massa / Masa / Massa
⏚	Bezugspotential / Reference potential/ Potentiel de réference/potenziale di riferimento/ potencial de referencia/ referentie spanning
*⊥	Separate Masse / Seperate chassis connection / Connection de masse separée / Massa separata / Conección de masa separada /Separate massa
U AFB U WR	Schaltspannung bei Aufnahme/ Switching voltage for record / Tension de commutation en enregistrement / Tensione commut.in registrazione / Tension de conmutación en grabación / Schakelspanning voor opname
AFC	Von der Empfangsfrequenzeinstellung abhängige Spannung / Voltage dependent on the selected frequency / Tension de CAF / Tensione dipendente dalla regolaz. frequ. di ricezione / Tensión dependiente del ajuste de la frecuencia de recepción / Automatische frequentie controler
AGC-DOS	Regelspannung für MENUE-Signalbalken / Control voltage for MENU signal bar / Tension de régulation pour les signaux menu et mire / Tensione di regolazione per barre segnale MENU/ Tensión de regulación para barras de señal MENU / Regelspanning voor menu signaalbalken
FM AF AF FM	AM/FM-Umschaltung / AM/FM switch over / Commutation AM/FM / Commutazione AM/FM / Conmutación AM/FM / AM/FM-omschakeling
U ATS	Automatic Tuning Search Pegel / Automatic Tuning Search Level / Niveau de recherche automatique (ACP) / Livello ricerca automatica sint. / Nivel ATTS / Auto tuning search niveau
U AUTO SEC	Status f. autom. SECAM-Umschaltung / Status f. auto SECAM switchover / Statut pour commutation automatique SECAM / Stato per commutaz. autom. SECAM / "Status" para comutación SECAM automática / Status v.autom.SECAM-omschakeling

U AUTO SEC-E	Autom. SECAM-Ost Erkennung / Autom. SECAM-EAST identification/ Détection aut. SECAM-ESTE/ Identificazione SECAM-EAST/ Identificación automatica SECAM-EAST/ Autom. SECAM-OOST herkenning
U AV U EURO-AV	AV-Schaltspannung / AV switching voltage / Tension de commutation AV / Tensione di commutatione AV / Tensión de conmutación AV / AV schakelspanning
U AV-I	Status f. Schaltspannung an AV-I / Status for the switching voltage on AV-I / Statut de tension de commutation sur la prise péritélévision / Condizione per tens. di commutaz. su AV-I / Status para tensión de conmutactión en AV-I / Schakelspanning AV-I
U AV-II	Auswertung einer externen Schaltspannung / Evaluation of an external switching voltage / Analyse d'une tension de commutation externe /Valutazione di una tens. di commutaz. esterna / Evaluación de una tensión de conmutación externa / Herkenning van een externe schakelspanning
U AV-III	Schaltspannung an AV-I (abhängig v. d. Auswertung d. U-AV-II) /Switching voltage on AV-I (dependent on the evaluation of U-AV.II) /Tension de commutation sur la prise péritélévision I (dépendant de l'analyse de la tension de commutation sur la prise péritélévision II) / Tensione di commutazione su AV-I (in base alla valutazione di U-AV-II) / Tensión de conmutación en AV-I (pendiente de la analización de U-AV-II) / Schakelspanning op AV-I (afhankelijk v. d. verwerking v. d. U-AV-II)
B	Blau / Blue / Bleu / Blu / Azul / Blauw
U BD III	BD. III-Umschaltung / BD. III switch-over / Commutation bande III / Commutazione banda III / Conmutación banda III / BD. III omschakeling
BK	Burst-Key-Impuls / Burst Key pulse / Impulsion Burst-Key / Impulso Burst-Key / Impulsos de puerta de Burst / Burst Key puls
BLANK	Signalaustastung / Signal Blanking / Suppression du signal / Sopressione segnale / Supresión de señal / Signaal Blanking
U BOX/ SEC. U BOX/ SEC.	Schaltsignal bei DOS- bzw. OSD-Einblendungen in ein SECAM-Signal / Switching signal with DOS or OSD superimposed on a SECAM signal /Tension de commutation DOS ou OSD en SECAM / Tensione di commutazione con sovrapposizione DOS (OSD) in un segnale Secam /Tensión de conmutación de DOS o inserciones OSD sobre una señal SECAM / Schakelsignaal bij DOS of OSD invoeging in een SECAM signaal
U BS	Bildspeicher-Status / Field Memory Status / Status mémoire images / Status memoria immagine / Status memoria de imagen / Beeldgeheugen status
C-F R	Drehrichtung Capstan Motor / Sense of Rotation / Sens de rotation du moteur cabestan / Verso rotaz. Motore Capstan / Sentido de giro motor capstan / Draairichting Capstanmotor
CAM	Camera
CCVS	FBAS-Signal / CCVS signal / Signal Video-composite / Segnale FBAS (Video composito) / Senal completa de Videocolor / FBAS-signaal
CH	Farbsignal / Chroma signal / Signal chroma / Segnale croma / Señal de croma / Chromasignaal
U CH EP	Chroma Hüllkurve (Video) / Chroma envelope (Video) / Courbe envelopante chroma (Video) / Curva d´inviluppo chroma (Video) / Chroma-curva envolvente de video / Chroma pakket
CLK CLOCK	Clockleitung / Clock line / Ligne horloge / Linea clock / Linea reloj / Clock leiding
CLOCK-S	Clockleitung serielle Schnittstelle / Clock line serial interface /Horloge série interface/ interfaccia seriale linea clock/ interface serie linea de clock/ Clock seriele interface
U CM	Steuerspannung Capstanmotor/ Control voltage, capstan motor/Tension de commande moteur cabestan / Tensione di comando motore capstan / Tensión de mando del motor del capstan / Stuurspanning capstanmotor
U COL B-W	Schwarz/Weiß-Farbe Schaltspannung / Black/White-Colour Switching Voltage / Tension de commutation noir/blanc - color / Tens. commut. bianco/nero-colore / Tensión de conm. b/n-colore / Zwart-Wit-kleur omschakel spanning
U COMP	Komponenteneingangssignal Y/C / Y/C component input signal/signal d´entrée composants/ Segnale dentrata componenti Y/C/ Señal d´entrada componentes Y/C / Component input signaal Y/C
CON.FM	Geregelte FM / Controlled FM / FM réglée / FM regolata / FM Regulada / Geregelde FM
CONTROL-S	Daten für Fernsteuerung über CONTROL-S-Buchse / Remote Control Data via the CONTROL-S-socket/ Données pour télécommande via la prise CONTROL-S / Dati per telecomando tramite presa CONTROL-S / Datos para el manejo a distancia a través del conector CONTROL-S / Afstandsbedienings data via de CONTROL-S ingang
U CP U CP	Canal Plus
CTL SYN	Synchronimpuls / Sync pulse / Impulsion Synchro / Impulso di sincronismo / Impulsos de sincronismo / Sync.puls
U CR	Stellerspannung Crispening /Threshold Voltage Crispening / Tension de réglage contours / Tensione Crispening / Tensión rep. "crispening" / Offsetspanning crispening
U CV	Status CV/ CV status/Etat CV / Condizione CV / Status CV CV Status
CV HF	CV/HF-Umschaltung / CV/RF switch-over / Commutation CV/FR / Commutazione CV/RF / Conmutación banda CV/ RF / CV/HF-omschakeling
CVS	BAS-Signal / CVS signal / Signal Video / Segnale BAS (Video) / Señal completa de Video / BAS-signaal
CVBS	FBAS-Signal / CVBS signal / Signal Video / Segnale BAS (Video) / Señal completa de Video / FBAS-signaal
DATA	Datenleitung / Data line / Ligne de données / Linea dati / Linea datos /Data leiding
DATA-S	Datenleitung Serielle Schnittstelle / Data line serial interface/ Données série interface/ interfaccia serialelinea dati/ interface serie linea de datos/ data seriele interface
U DOA	Dropout-Abschwächung / Dropout attenuation /Attenuation dropout / Attenuazione dropout / Atenuación dropout / Dropout verzwakking
U DOK	Dropout-Killerspannung / Dropout Killer Voltage /Tension de commutation dropout /Tensione di soppressione dropout / Tension de conmutación dropout / Dropout killerspanning
U DOS	Umschaltung DOS-/Video-Bild / DOS-CCVS/picture switch-over / Commutation DOS-Vidéo / Commutazione Video/ DOS / conmutación DOS/imagen de video / Omschakeling DOS-/video beeld
U DOS REC.	Untertitelaufnahme / Subtitle Recording / Enregistrement des soustitres / Registrazione sottotitoli / Grabación de subtitulos / Ondertitel opname
DS	Drum Stop-Pegel / Drum Stop Status / Niveau (tambour de tête arrête) / Livello stop tamburo / Nivel de detención del tambor / Drum stop status
DTL	Datenübernahmeleitung / Data transfer line / Ligne echange de données / Linea di transferimento dati / Linea transferencia datos / Data transfer leiding

EC-BUSY	Edit-Controller Bestätigung / Edit-Controller acknowledge/ Bit de confirmation du NO d´Edit/ Abilitazione controllore edit/ reconocimiento controlador edit/ Edit processor bevestiging
EC-CLK	Clock vom Central- zum Edit-Controller / Clock from Central-to Edit-Controller/Horloge du µc principal vers le µc d´Èdit/ clock dal centrale al controllore edit/ clock central a controlador edit/Clock van centrale-naar Edit processor
U EDIT	Edit Status / Edit Status / Status Edit / Stato Edit / Status Edit /Edit Status
EDIT1 EDIT2	Daten vom Central- zum Edit-Controller / Data from Central-to Edit-Controller/ Donneés du µc principal vers le µc d´Edit/ dati dal centrale al controllore edit/ datos central a controlador edit / Data van centrale naar Edit processor
U EE	Durchschleifbild / EE-Betrieb / Loop through video / EE-mode
U EN-FB	Freigabe des Fastblank Impuls / Fast blank pulse enable / Validation impulsion blanking / Consenso dell' impulso del bianco / Enable impulso Fastblanking / Vrijgave voor fastblanking impuls
F	Bildimpuls / Fieldpulse / Impulsion trame / Impulso di quadro / Impulsos de cuadro / Beeld puls
F1 F2	Heizung F1/F2/ Filament F1/F2 / Filament F1/F2 / filamento caldo F1/F2/ filamento de calefacción F1/F2/ Gloeispanning F1/F2/
U FCT	Funktion-Ein-Status / Function "ON" status / Statut marche / Funzione inserita /Activación tensión / Functie ,"0N" status
$F_{H/2}$	Halbe Zeilenfrequenz / Half line frequency / Fréquence demie ligne / Frequenza di riga dimezzata/ Semifrequencia de línea / Halve lijnfrequentie
FLY ER	Rotierender Löschkopf / Flying erase head / Tête d'effacement rotative / Testina cancellazione rotante / Cabeza rotativa de borrado / Roterende wiskop
FM-P	FM-Bild / FM picture / Image - FM / Immagine FM / FM de imagen / FM-Beeld
U FMEP	FM-Hüllkurve Bild / FM envelope picture / Envelope FM image / Inviluppo video FM / Envolvente de FM de imagen
U_{FMPI}	FM-Bild-Kennung / FM picture identification / Identification Video / FM/Identificazione Video/FM / Identificación FM imagen / FM picture identificatie
FSC	Hilfsträgerfrequenz / Subcarrier frequency / Fréquence de la sous-porteuse / Frequenza portante ausil. / Frecuencia de portadora auxiliar / Subcarrier frequentie
G	Grün / Green / Vert / Verde / Groen
U H H	Zeilen-Eintastung / Line insertion / Insertion ligne / Inserimento di riga / Inserción de linea / Line insertion
U HEIM	Heimlauf / Automatic unthread on switch off / Degament auto.par inter M/A / Sgancio autom. con spegnimento / Desenhebrado preventivo / Automatisch uitrijgen bij uitschakelen
HF AV	HF/AV-Umschaltung / RF/AV switch.over / Commutation HF/ AV / Commutazione HF/AV / Conmutacion banda HF/AV / HF/AV -omschakeling
HF/CV AV	HF/CV-AV-Umschaltung / RF/CV-AV switch-over / Commutation HF/CV-AV / Commutazione HF/CV-AV / Conmutacion banda HF/CV-AV / HF/CV-AV-omschakeling
HI-CH	Kopfumschaltimpuls-Chroma / Chroma head switching pulse / Impulsion de commutation tête/chroma / Impulso di commutazione testina/Croma / Conmutación cabezas de croma / Video head switching puls chroma
HI-P	Kopfumschaltimpuls-Bild / Video head switching pulse / Impulsion de commutation tête image / Impulso di commutazione testina video / Conmutación de cabezas de video / Video head switching puls
U HWM U HWM	Steuerspannung Kopfradmotor / Control voltage, headwheel motor / Tension de commande moteur tambour de têtes / Tensione di comando motore ruota testine /Tensión de mando del motor del volante de cabezas / Stuurspanning drummotor
IF	ZF-Signal / IFsignal / Signal FI / Segnale FI / Señal de FI / MF-signaal
U KOIN. U KOIN.	Koinzidenz-Spannung / Coincidence voltage /Tension de coincidence /Tensione di coincidenza /Tensión de coincidencia / Coïncidence spanning
U LP NP LP	Longplay-Umschaltung / Longplay switchover / Commutation longue duree / Commutazione longplay / Commutación a longplay / Longplay-omschakeling
EP LP	Umschaltung Standard/Long/Economy-Play/ Commutation LP-EP/ Commutazione SP-LP-EP/ Conmutación LP-EP/ Omschakeling Standaard-/ Long-/ Economy-play
LP REC	Status bei Longplay Aufnahme / Status at longplay record/ status LP-enregistrement/ stato di registrazione longplay/ status LP en grabación/ Status bij Longplay opname
U LP-TRICK	LP-Trick status / LP-trick status/ Effets spéciaux LD/ stato trick-LP/ Efectos especiales LP/ LP trick status
MIX.SYN	Synchrongemisch / Mixed sync. / Signeaux synchro / Sincronismo O/V / Sincronismos H/V / Mixed synchroon
U NTSC U NTSC	NTSC-Status / Status NTSC / Etat NTSC / Condizione NTSC / Status NTSC / NTSC-Status
NTSC PAL	NTSC-PAL Umschaltung/NTSC-PAL switch over/ Commutation NTSC-PAL/ Commutazione NTSC-PAL/ Conmutación NTSC-PAL/ NTSC-PAL omschakeling
OE	Ausgangsfreigabe / Output enable / Validation sortie / Consenso di uscita/ Habilitación salida / Output enable
U PAL	PAL/NTSC
U PAY-TV	Pay-TV-Schaltspannung / Pay TV switching voltage / Tension de consommation / tele à péage / Tensione di commutazione TV a pagamento / conmutación a TV de peaje / Pay TV schakelspanning
PB U PB	Wiedergabe-Status / Playback status / Status reproduction / Stato riproduzione / Status reproducción / Weergave status
PB-FM	Wiedergabe FM / Playback FM / Reproduction FM / Riproduzione FM / Reproducción FM / Weergave FM
U PIC U PL.CO	Bildkontrolle / Picture Control / Contrôle de contour image / Controllo definizione dell' immagine / Control de imagen / Picture control
PIP ▄	Bild im Bild / Picture in picture / Image en image / Immagine nell´immagine / Imagen en imagen / Beeld in beeld
PLL SYNC	Synchron Impuls von HPLL / Sync pulse from HPLL /Impulsion synchro de HPLL / Impulso di sincronismo di HPLL / Impulso de sincronismo de HPLL / Sync. puls van HPLL
U PS	Regelumschaltung bei BSL / Control switching during picture search / Tension de commutation en recherche visuelle / Tensione di regolazione durante la ricerca immagine / Conmutación a búsqueda de imagen /Controle omschakeling tijdens picture search
R	Rot / Red / Rouge / Rosso / Rojo / Rood

U RE	RE-Status / RE status / Status RE / Stato RE / Status RE / RE status
U REC U REC	Aufnahme-Status / Record status / Status enregistrement / Stato di registrazione / Status de grabación / Opname status
RESET	Reset-Impuls / Reset pulse / Impulsion de reset / Impulso reset / Impulso de reset / Reset puls
U RHF	HF-Aufnahmespannung / RF record voltage / Tension d´enregistrement HF / Tensione di registrazione HF / Status de grabación RF / HF-Opname spanning
ROCL	Auslesetakt / Read out clock / Fréquence de echantillonage / Cadenza di analis / Frecuencia de lectura / Systeem clock
U S-VHS VHS	VHS/S-VHS Umschaltung / VHS/S-VHS Switching / CommutationVHS/S-VHS / Commutatione VHS/S-VHS / Conmutación VHS/S-VHS / VHS/S-VHS omschakeling
SAT-DEV	SAT Hub / SAT deviation / Excursion SAT / Deviazione SAT / Excursión de SAT / SAT zwaai
SAT-ID	SAT (Satellit)-Mute-Kennung / SAT (Satellite) Mute identification / Identification mute SAT / Identificazione silenziamento SAT / Código de silenciación SAT (satélite) / SAT (Satelliet) Mute identificatie
SAT-MUT	SAT Mute / SAT mute / Silence SAT / Silenziamento SAT / Mute SAT / SAT mute
SC	Sand castle
SCK	Serielle Clockleitung / Serial clock line / Ligne horloge serielle / Linea clock seriale / Linea serie de reloj / Seriële klok leiding
SCL	I^2C-Bus-Clockleitung / I^2C Bus clock line / Ligne horloge Bus I^2C / Linea clock I^2C-Bus / Linea reloj del Bus I^2C / I^2C-Bus-klok leiding
U SCR	Schaltspannung "Scrambler" / "Scrambler" switching voltage /Tension de commutation "décodeur" /Tensione di commutazione "Scrambler" / Tensión de conmutación "Scrambler" / "Descrambler" schakelspanning
SDA	I^2C-Bus-Datenleitung / I^2C Bus data line / Ligne de données Bus I^2C / Linea dati I^2C-Bus / Linea datos del Bus I^2C / I^2C Bus data leiding
U SEC-O	Status SECAM Ost / Status SECAM east / Statut SECAM EST / Stato SECAM EST / Status SECAM oriental / Status SECAM oost
U SEC-W	Status SECAM West / Status SECAM west / Statut SECAM Ouest / Stato SECAM ovest / Status SECAM occidental / Status SECAM west
SECAM	SECAM
SI	Serielle Dateneingabe / Serial data input / Entree serielle de données / Ingresso dati seriali / Entrada serie de datos / Seriële data input
SO	Serielle Datenausgabe / Serial data output / Sortie serielle de données / Uscita dati seriali / Salida serie de datos / Seriële data output
SP-HI	Kopfumschaltimpuls-Standbild / Head switching pulse for freezeframe / Impulsion de commutation pour "Arrêt sur image" / Impulso commutaz. testine per fermo immagine / Impulso de conmutación de cabezas en paro de imagen / Video head switching puls voor stilstaandbeeld
SP-OPT	Standbildoptimierung / Freezeframe optimisation / Optimisation de l'arrêt sur image / Ottimizzazione fermo immagine / Optimización de la imagen fija
SP	Standbild / Still picture / Arrêt sur image / Fermo immagine / Imagen parada / Stilstaand beeld / Stilstaand beeld optimalisering
U SQ/PB	S-VHS Wiedergabe / S-VHS Playback / Lecture S-VHS / Riproduzione S-VHS / Reproducción S-VHS / S-VHS weergave
U STAND	Normumschaltung / Standard switch - over / Commutation norme / Commutazione de norma / Conmutación de norma / Norm omschakeling
STB STROBE	Datenübernahmeimpuls / Data Transfer Pulse / Impulsion de transfert de données / Impulso trasferimento dati / Impulso de transferencia de datos / Data transfer puls
U SVHS DET	S-VHS Erkennung / S-VHS detection voltage / Identification S-VHS / Identificazione S-VHS / Detección S-VHS / S-VHS erkenning
U SVHS -EP	FM-Hüllkurve Bild S-VHS / FM Envelope Video S-VHS / Envelope FM image S-VHS / Inviluppo video FM S-VHS / Envolvente de FM de imagen (S-VHS) / FM-Pakket S-VHS
U SW U SW	Schwaz/Weiß-Schaltspannung / Black/White-Switching Voltage / Tension de commutation noir/blanc / Tens. commut. bianco/nero / Tensión de conm. b/n / Zwart/Wit schakelspanning
U SW SO	SECAM-OST/WEST-Abfragespannung / SECAM EAST/ WEST scanning voltage / Tension d´identification Secam FR/Secam ME / Tensione di richiesta SECAM-EST/OVEST / Tensión de encuesta SECAM ESTE/OESTE / SECAM oost/west scan-spanning
TE	Bandende / End of tape / Fin de bande / Fine nastro/ Final de cinta /Einde band
U TEST	Schaltspannung für Testbildgenerator / Switching voltage for testpattern generator / Tension de commutation mire / Tensione di commutazione per generatore di prova / Activación del generador de prueba / Schakelspanning voor testbeeld generator
U THR	Einfädeln / Threading / Engagement de bande / Caricamento del nastro / Enhebrado / Inrijgen
U TRANSC	Transcoder Betrieb / Transcoder mode / Mode transcoder / Modo transcoder / Modo transcoder / Transcoder mode
TS	Bandanfang / Start of tape / Debut de bande / Inizio nastro / Principio de cinta / Begin band
TS TE	Bandanfang-/Bandende-Kennung / Tape start/tape end detection / Identification debut/fin de bande / Identificazione inizio/fine nastro / Identification de principio o fin de cinta / Begin band-/einde band detectie
U TT	Bandzug-Spannung / Tape tension voltage / Tension de bande / Tensione nastro / Tensión de cinta / Tape tension regelspanning
U TUN. UST 0 - 9V	Abstimmspannung / Tuning voltage / Tension d´accord / Tensione di sintonia / Tensión de sintonía / Afstemmings spanning (voltage)
U UHF	UHF.Umschaltung / UHF switch-over / Commutation UHF / Commutazione UHF / Conmutación banda UHF / UHF - omschakeling
UNC.FM	Ungeregelte FM v. Band / Uncontrolled FM from the tape / FM de bande non contrôlé / FM non regolata da nastro / no areglado FM de la cinta / Ongeregelde FM van tape
U UTHR	Ausfädeln / Unthreading / Degagement de bande / Scaricamento del nastro / Desenhebrado / Uitrijgen
V-SYNC	Bild- oder eingetasteter V-Impuls / Vertical sync pulse or inserted V-pulse / Signal synchro vertical image ou signal synchro vertical artificiel / Impulso sincro verticale oppure inserimento sincro verticale / Impulso vertical o impulso de sincro vertical / Raster of inserted V-puls
V	V-Eintastung / V insertion / Insertion V / Inserimento V / Inserción V / V-insertion

U V	Freigabe für V-Eintastung / Field insertion enable / Validation impulsion V / Consenso per inserimento V / Habilitacion inserción V / Vrijgave voor V-insertion
U VHF	VHF-Umschaltung / VHF switch over / Commutation VHF / Commutazione VHF / Conmutación banda VHF / VHF - omschakeling
U VHS -EP	FM-Hüllkurve Bild VHS / FM Envelope Video VHS / Envelope FM image VHS / Inviluppo video FM VHS / Envolvente de FM de imagen (VHS) / FM-Pakket VHS
VIDEO TRIV	FM-Hüllkurve / FM-Envelope
U VPS VT	StatusVPS/Videotext / Status VPS/Teletexte / Stato VPS/ Televideo / Status VPS/Teletexto / Status VPS/teletekst
U WM1 U WM2	Steuerspannung Wickelmotor / Control voltage , winding motor / Tension de commande moteur / Tensione di comando motor / Tensión de mando del motor / stuurspanning spoelmotor
U WR-V U WR-V	Bild-WR-Status / Video WR status / Status WR Video (enregistrement/lecture) / Stato Video / Status grabación / reproducción Video / Beeld WR status
Y Y	Y-Eintastung / Y insertion / Insertion Y / Inserimento Y / Inserción Y / Y-insertion

Schaltsymole für Audiosignale-Statusbefehle / Circuit diagram symbols for Audio signals / Status commands Symboles sur schema pour commandes de statut / Audio /Simboli di comando Audio / Simbolos de las señales de Audio y status de mando / Schema symbolen voor Audio signalen en Status commandos

L	Aufnahme-Empfindlichkeit, linker Kanal / Record sensitivity, left channel / Niveau d'enregistrement, canal gauche / Sensibilità di registrazione, canale sinistro / Nivel grabación, canal izquierdo / Opname niveau linker kanaal
R	Aufnahme-Empfindlichkeit, rechter Kanal / Record sensitivity, right channel / Niveau d'enregistrement, canal droit / Sensibilità de registrazione, canale destra / Nivel grabación, canal derecho /Opname niveau, rechter kanaal
L	Meßwertanzeige, analog links / Meter reading,analog left / Indicateur de modulation analogique, gauche / Indicazione valore di misura analogico, sinistra / Indicador de nivel izquierdo / Meterwaarde analoog links
R	Meßwertanzeige, analog rechts / Meter reading, analog right / Indicateur de modulation analogique, droit / Indicazione valore di misura analogico, destra / Indicadorde nivel, derecho / Meterwaarde analoog rechts
U 2CHS	Zwei-Ton-Status / 2-channel sound status / Statut double son / Stato doppio Audio / Status sonido dual / 2-Kanaal geluid status
◯	Mikrofon-Eingang / Microphone input / Entrée micro / Ingresso microfono / Entrada micrófono / Microfoon ingang
U +5V$_W$ U +5V$_W$	Wiedergabe-Status / Playback status / Status reproduction / Stato riproduzione / Status reproducción / Weergave status
├◯┤	Nullpunkt-Einstellung der Audio-Anzeige / Zero adjustment of audio indicator / Point zéro affichage audio / Regolazione zero dell'indicazione Audio / Punto cero indicador de audio / Nulpunt instelling voor audio indicator
U τ	Verzögerte Regelspannung / Delayed control voltage / Tension de regulation retardée / Tensione di regolazione ritardata / Tensión diferida de cag / Vertraagde stuurspanning
AGC	Automatische Verstärkungsregelung / AGC (Automatic Gain Control) / Contrôle automatique du gain / Regolazione automatica di amplificazione / Regulación automática de la amplificación / Gain control

AUDIO CP	Canal Plus-Signal für Audio / "Canal plus" signal for audio / signal Canal Plus pour audio / Segnale canal-plus per audio / Señal de Canal Plus para audio / "Canal plus" signaal voor audio
AUDIO-L	Audiosignal, links /Audio signal, left / SignalAudio, gauche / Segnale Audio, sinistro / Señal de Audio, izquierda / Audiosignaal, links
AUDIO-R	Audiosignal, rechts /Audiosignal, right / Signal Audio, droit / Segnale Audio, destro / Señal de Audio, derecha / Audiosignaal, rechts
AUDIO	Audiosignal, Mono / Audio signal, Mono / Signal Audio, Mono / Segnale Audio, Mono / Señal de Audio, Mono / Audiosignaal, Mono
U AUTOM. U AUTOM.	Automatik/Manuell-Umschaltung / Automatic/manuel switch-over / Commutation automatique/manuel / Commutazione automatica/manuale / Conmutación automatica manual / Automatic/Manuel omschakeling
U CH 1 U CH 2	Status Tonkanal 1,2 / Sound channel 1,2 status / Statut canal 1,2 / Stato canale Audio 1,2 / Status canal 1,2 sonido dual/ Geluidkanaal 1,2 status
CH1/CH2 STEREO	Kanal 1 , Kanal 2, Stereo / Channel 1 ,channel 2, Stereo / Canal 1 ,canal 2, Stereo / Canale 1 , canale 2, Stereo / Kanaal 1 , Kanaal 2,Stereo
CONTROL	Ansteuerung Eingangswahlschalter / Control input select switch / Commande de sélecteur entrand / Selettore ingresso pilotagio / Exitación del selector de entradas / Stuuringang keuze schakelaar.
U DUB U DUB	Nachvertonung / Dubbing / Postsonorisation / Postsonorizzazione / Sonorización posterior / Dubbing
FAD	Ton-Ein-/Ausblendung / Sound fade-in/fade-out / Arrivée et disparition progressive du son / Audio inserito/escluso / Inserción/desinserción de sonido / Geluid fade-in/fade-out
U FM-A	FM-Ton-Status / FM sound status / Statut Audio FM / Stato AudioFM / Status sonido FM / FM-Geluid status
FM F.T.	Audio FM-Signal vom Band / Audio FM-signal from tape/ signal Audio FM relu/ segnale audio - FM dal nastro/ señal audio FM de cinta/ Audio FM signaal van tape
FM-S	FM-Ton / FM sound / Son FM /Audio FM / Sonido FM / FM-Geluid
U FMES	FM Hüllkurve Ton / FM envelope, sound / Courbe envelopante audio FM / Curva d'inviluppo FM audio / FM-curva envolvente de sonido / FM-Pakket HIFI
U FMSID	FM-Ton-Kennung / FM sound identification / Identification AudioFM / Identificazione Audio FM / Identificación sonido FM / FM geluid identificatie
U FMSRE	Status f. Aufn. FM-Ton / FM sound record status / Statut pour enregistrement son FM / Stato di registrazione Audio FM / Status grabación sonido FM / FM geluid opname status
FM T.T.	Audio FM-Signal zum Band /Audio FM-signal to tape/Audio signal FM enregistrement/ segnale audio-FM per il nastro/ señal audio FM grabación/Audio FM signaal naar tape
U FRESH	Pegelautomatik -Abschaltung und Rücksetzung / Automatic Level Control - switch-off and reset / Contrôle automatique de niveau -Arrêt et reset / Livello automatico-disinserimento e reinserimento / Nivel automatica - desconección y Reset / Automatische level controle-uitschakeling en Reset
U FR I U FR I	Frankreich Band I / France band I / France bande I / Francia banda I / Banda I Francesa / Frankriik band I
FTE	Hauptlöscher / Full-track erase / Tête d´effacement pleine piste / cancellazione completa / Borrado total / Fulltrack wiskop

U FTE U FTE	Status Hauptlöscher / Status Mains Erase System / Etat effacem. principal / Stato cancellatore totale / Status de borrado total / Status Fulltrackwiskop
U HF-GEN	Generator-Steuerspannung / Generator control voltage / Tension de commande générateur / Tensione controllo generatore / Tensión de control del generator / Generator stuurspanning
HI-OUT	Kopfumschaltimpuls Ton-Ausgang / Head switching pulse audio out / Impulsion de commutation de tête sortie audio / Impulso commutaz. testine - uscita audio / Salida impulse conmutación cabeza sonido / Head switching puls audio out
HI-S	Kopfumschaltimpuls-Ton / Sound head switching pulse / Impulsion de commutation tête/son / Impulso di commutazione testina Audio/Conmutación cabezas de sonido / Geluid head switching puls
HIFI-L	HIFI-Ton links / HIFI sound left / Son HIFI gauche / Audio HIFI sinistro / Sonido HIFI izquierda / HIFI-Geluid links
HIFI-R	HIFI-Ton rechts / HIFI sound right / Son HIFI droit / Audio HIFI destro / Sonido HIFI derecha / HIFI-Geluid rechts
U LM	Stellerspannung "Master"-Pegel / Threshold Voltage "Master"-Level / Tension de réglage du niveau "Master" / Tensione livello "Master" / Tensión para nivel "Master" / Offset-spanning masterlevel
U LO	Stellerspannung Ausgangspegel / Threshold Voltage Output Level / Tension de réglage niveau de sortie / Tensione livello d'uscita / Tensión nivel de salida / Offset-spanning uitgangslevel
U MD	Microvertonung / Microphone dubbing / Sonorisation micro / Doppiaggio con microfono / Sonorización micro / Microfoon dubbing
U MICRO	Schaltspannung für Mikrofon / Micro Switching Voltage / Tension de commutation pour micro /Tensione di commutazione microfono / Tensión de conmutación para micrófono -/ Schakelspanning voor microfoon
MIX	Schaltspannung Mix-Betrieb / Switching Voltage Mix-Mode /Tension de commutation fonction mix / Tens. commut. funzionam. Mix / Tensión conmutatión modo MIX / Schakelspanning Mix gebruik
U MUTE U MUTE	Stummschaltung / Muting / Circuit de silence / Silenziamento / Silenciador / Muting
U MUTE EUAV	Stummschaltung Ton EURO-AV / Muting sound EURO-AV / Circuit silence son EURO-AV / Silenziamento audio EURO-AV / Silenciador sonido EURO-AV / Muting geluid EURO-AV
NICAM	Nicam
NORM.	Normalton / Normal Sound / Son normal / Audio normale / Sonido normal/Normaal geluid
U PAR	Parallelvertonung / Parallel dubbing / Synchronisation simultanée / Sonorizzazione parallela / Sonorización paralela / Parallel weergave
PB	Audio-Wiedergabe-Signal v. A/W-Kopf / Audio playback signal from R/P head / Tête Audio / Mode lecture / Riproduzione Audio segnale dalla testina R/A / Reproducción (cabeza de Audio) / Audio weergave signaal naar opname-/weergavekop
U PB/T-M	Wiedergabe Trick-Mix / Switching Voltage Playback Trick-Mix / Tension de commutation lecture Trick mix / Tens. commut. riprod. Trick-Mix / Tensión conm. repro/trick-mix / Weergave Trick Mix
U RAF	Aufnahme-Umschaltung / Record switch-over / Commutation enregistrement / Commutazone-registrazione / Conmutación de grabación / Opname omschakeling
REC	Audio-Aufnahme-Signal z. A/W-Kopf / Audio record signal to R/P head / Tête Audio / mode d´enregistrement / Registrazione Audio segnale alla testina R/A / Grabación (cabeza de Audio) / Audio opnamesignaal naar opname-/weergavekop
U REC U REC	Aufnahme-Umschaltung / Record switch-over / Commutation enregistrement / Commutazone-registrazione / Conmutación de grabación / Opname omschakeling
REC PB PB U REC	Aufnahme/Wiedergabe-Umschaltung / Record/playback switching/Commutation enregistrement/lecture / Commutaz. registrazione / riproduzione / Conmutación grab/repro / Opname/Weergave omschakeling
SAT-SID	SAT (Satellit)-Tonkennung / SAT (Satellite) sound identification / Identification son SAT / Identificazione audio SAT/ Código de sonido SAT (satélite) / SAT (Satelliet) Geluid identificatie
SE	Tonlöscher / Sound erase / Effacement son / Cancellazione Audio / Borrado sonido / Geluid wiskop
U SE	Status Tonlöscher / Status Sound Erase / Etat effacem. audio / Stato cancellatore audio / Status de borrado de sonido / Status geluidwiskop
U TRICK	Status Trick / Function truquage / Situaz. effetto speciale / Status truco / Status Trick
U WR-A U WR-A	Ton-WR-Status / Sound WR status / Statut WR Audio (enregistrement/lecture) / Stato Audio WR / Status Grabación/reproducción sonido / Geluid WR status
WR	WR-Status / WR status / Statuts WR / Stato WR / Status WR / WR status
WT1	Tacho Wickelteller links / Tacho generator, left spindle / Générateur tachymétrique du plateau porte-bobine gauche / Piattello avvolg.tachim.sinistro / Tacometro del portacarrete izquierdo / Tacho generator, links
WT2	Tacho Wickelteller rechts / Tacho generator, right spindle / Générateur tachymétrique du plateau porte-bobine droit / Piattello avvolg.tachim.destro / Tacometro del portacarrete derecho / Tachogenerator, rechts

Schalterbezeichnungen / Switch designations / Désignation des contacts/ Denominazioni degli interruttori / Denominación de contactos / Schakelaar benaming

CL 1 **CL 2**	Cassettenladekontakte / Cassette loading contacts / Contacts de positionnement logement cassette/ Contatti caricamento cassetta / Contactos del portacassette / Cassette loading contact
CS	Zählschalter / Counter switch / Contact de comptage / Interruttore di conteggio / Contacto contador / Teller schakelaar
CPS	Cassettenschachtkontakt / Cassette compartment switch / Contact logement cassette / Contatto vano cassetta / Posición del portacassetta / Cassette compartiment schakelaar
REC	Aufnahmesperre / Record lock / Sécurité d'enregistrement / Blocco di registrazione / Bloqueo de grabación / Opname vergrendeling
PIS	Identifikationsschalter / Identification switch / Commutateur d'identification / Interruttore di identificazione / Contacto identificación / Identificatieschakelaar
INIT	INIT.-Schalter / Deck switch / Commutation deck / Commutazione deck / Conmutador deck / Deck schakelaar

Kopfbezeichnungen / Head designations / Désignation des têtes / Denominazione delle testine / Abreviaturas de las cabezas / Kopbenamingen

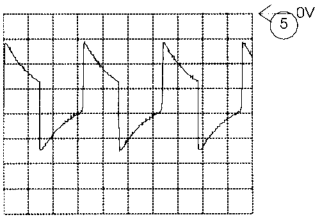
AWK	Aufnahme-/Wiedergabekopf / Record/playback head /Tête combinée enregistrement/lecture / Testina di registrazione / riproduzione / Cabeza de registración/reproducción / Opname-/Weergavekop
CTL	Synchronkopf / Sync head / Tête synchro / Testina di sincronismo / Cabeza de sincronismo / Synchroonkop
TLK	Tonlöschkopf / Sound erase head / Tête d'éffacement son / Testina di cancellazione audio / Cabeza de borrado de sonido / Geluid wiskop
HLK	Hauptlöschkopf / Full-track erase head / Tête d'éffacement pleine piste / Testina de cancellazione completa / Cabeza de borrado total / Full-track wiskop

Sensoren-Abkürzungen / Sensor abbreviations / Abréviations de détecteurs / Abbreviazioni usate per i sensori / Abreviaturas empleadas para sensores / Sensoren afkortingen

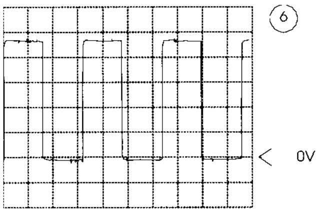
WPL /	Tacho Wicketeller links / Tacho generator, left spindle / Générateur tachymétrique du plateau WM1 porte-bobine gauche / Piattello avvolg.tachim.sinistro / Tacometro del portacarrete izquierdo / Tacho generator, linkse spoelschotel
WPR /	Tacho Wickelteller rechts / Tacho generator, right spindle / Générateur tachymétrique du plateau WM2 porte-bobine droit / Piattello avvolg.tachim.destro / Tacometro del portacarrete derecho /Tacho generator,rechtse spoelschotel
TAS	Bandanfang / Start of tape / Debut de bande / Inizio nastro / Principio de cinta / Begin band
TAE	Bandende / End of tape / Fin de bande / Fine nastro / Final de cinta / Einde band
FTA	Fädeltacho / Threading tacho / Tacho enfilage / Impulsi di caricamento / Taco de enhebrado / Inrijgtacho

Spannungs-Abkürzungen / Voltage abbreviations / Abréviation des tensions / Abbreviaz. delle tensioni / Abreviaturas de las tensiones / Spanningen afkortingen

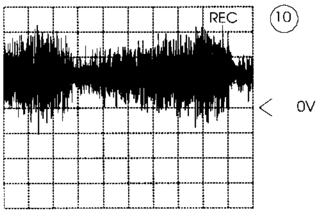
...V_D	Dauerspannung / Unswitched voltage / Tension permanente /Tensione permanente / Tensión permanente / Continu spanning
...V_{DM}	Dauer-Motor-Spannung / Unswitched motor voltage / Tension permanente moteur / Tensione permanente motore / Tensión permanente motor / Continu motor spanning
...$+V_A$	Aufnahmespannung / Record voltage / Tension d'enregistrement / Tensione di registrazione/ Tensión en grabación / Opname spanning
...$+V_W$	Wiedergabespannung / Playback voltage / Tension lecture / Tensione di riproduzione/ Tensión en reproducción / Weergave spanning
...V_F	Funktionspannung / Function voltage / Tension de fonctionnement / Tensione de regime / Tensión funciones / Funktie spanning
...V_{AHF}	HF-Aufnahmespannung / RF record voltage / Tension d´enregistrement HF / Tensione di registrazione HF/Status de grabación RF/ HF-Opname spanning
...VD $_{UHR}$	Dauer-Uhr-Spannung / Unswitched clock voltage / Tension permanente horloge / Tensione permanente orologio / Tensión permanente reloj / Continu klok spanning
...V_E	EIN-Spannung (Ein-/Ausschalter gedrückt) / "Machine-on" voltage (ON/OFF switch pressed) / Tension de marche (touche M/A enclenchée) / Tensione d'accensione (interr. accens./spegn.premuto) / Tensión "En Marcha" (interruptor pulsado) / Inschakel Spanning (Aan/Uit druk schakelaar)
...V_B	Buchsenspannung / Socket voltage / Tension embase / Tensione presa / Tensión en conector / Socket-spanning



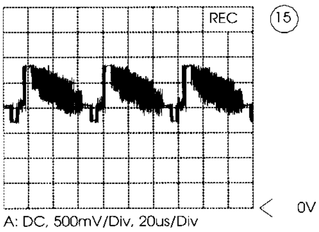
A: DC, 5 V/Div, 10us/Div
Connector 1509 Pin 2



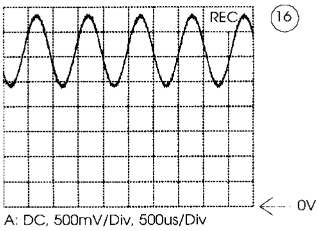
A: DC, 1 V/Div, 10us/Div
Connector 1509 Pin 3



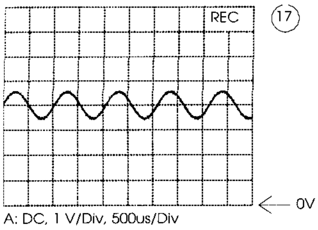
A: DC, 500mV/Div, 10us/Div
Connector 1624 Pin 10



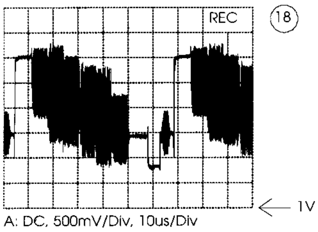
A: DC, 500mV/Div, 20us/Div
Connector 1624 Pin 5



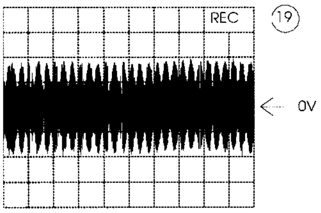
A: DC, 500mV/Div, 500us/Div
Connector 1625 Pin 9



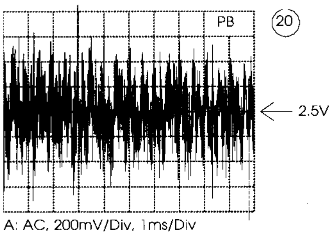
A: DC, 1 V/Div, 500us/Div
Connector 1637 Pin 5



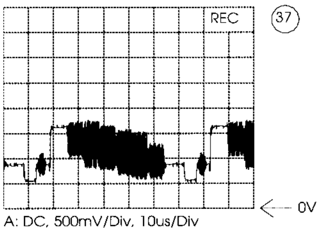
A: DC, 500mV/Div, 10us/Div
Connector 1638 Pin 7



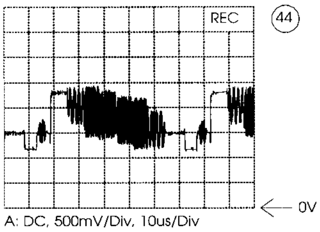
A: DC, 100mV/Div, 1ms/Div
Connector 1637 Pin 12



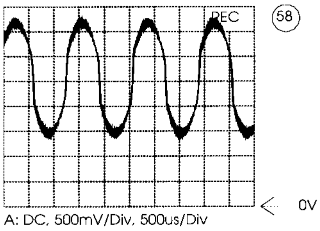
A: AC, 200mV/Div, 1ms/Div
Connector 1637 Pin 14



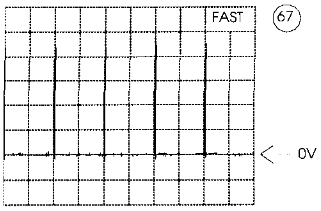
A: DC, 500mV/Div, 10us/Div
Connector 1638 Pin 12



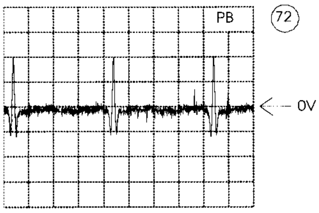
A: DC, 500mV/Div, 10us/Div
Connector 1638 Pin 10



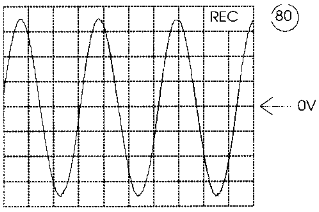
A: DC, 500mV/Div, 500us/Div
Connector 1502 Pin 4



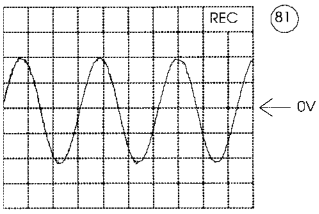
A: DC, 1 V/Div, 10ms/Div
Connector 1530 Pin 9



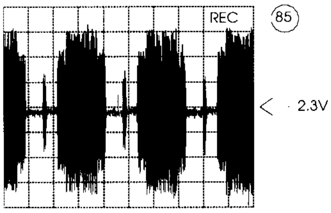
A: DC, 100mV/Div, 10ms/Div
Connector 1501 Pin 5



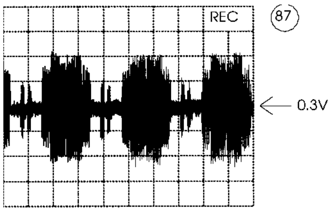
A: DC, 5 V/Div, 5us/Div
Connector 1503 Pin 1



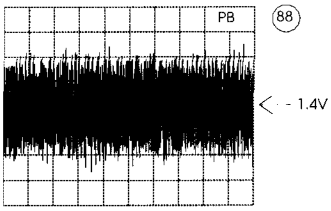
A: DC, 5 V/Div, 5us/Div
Connnector 1503 Pin 4



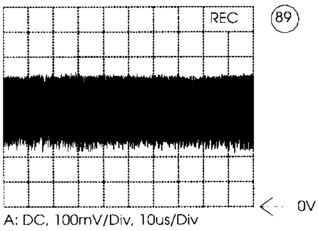
A: AC, 100mV/Div, 20us/Div
Connector 1524 Pin 2



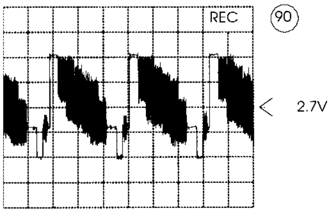
A: AC, 50mV/Div, 20us/Div
Connector 1530 Pin 2



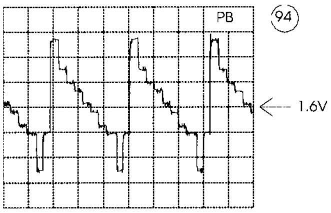
A: AC, 100mV/Div, 10us/Div
Connector 1530 Pin 4



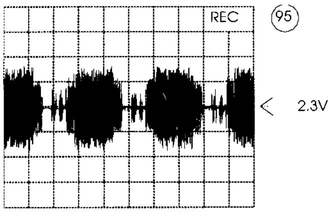
A: DC, 100mV/Div, 10us/Div
Connector 1530 Pin 6



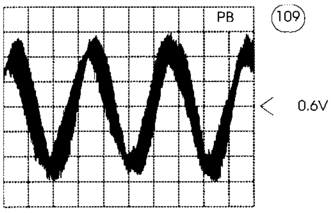
A: AC, 500mV/Div, 20us/Div
Connector 1526 Pin 9



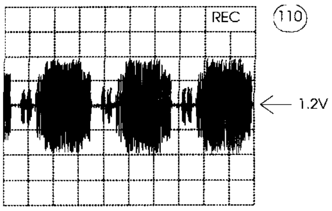
A: AC, 200mV/Div, 20us/Div
Connector 1526 Pin 11



A: AC, 200mV/Div, 20us/Div
Connector 1526 Pin 13



A: AC, 50mV/Div, 500ns/Div
Connector 1525 Pin 15

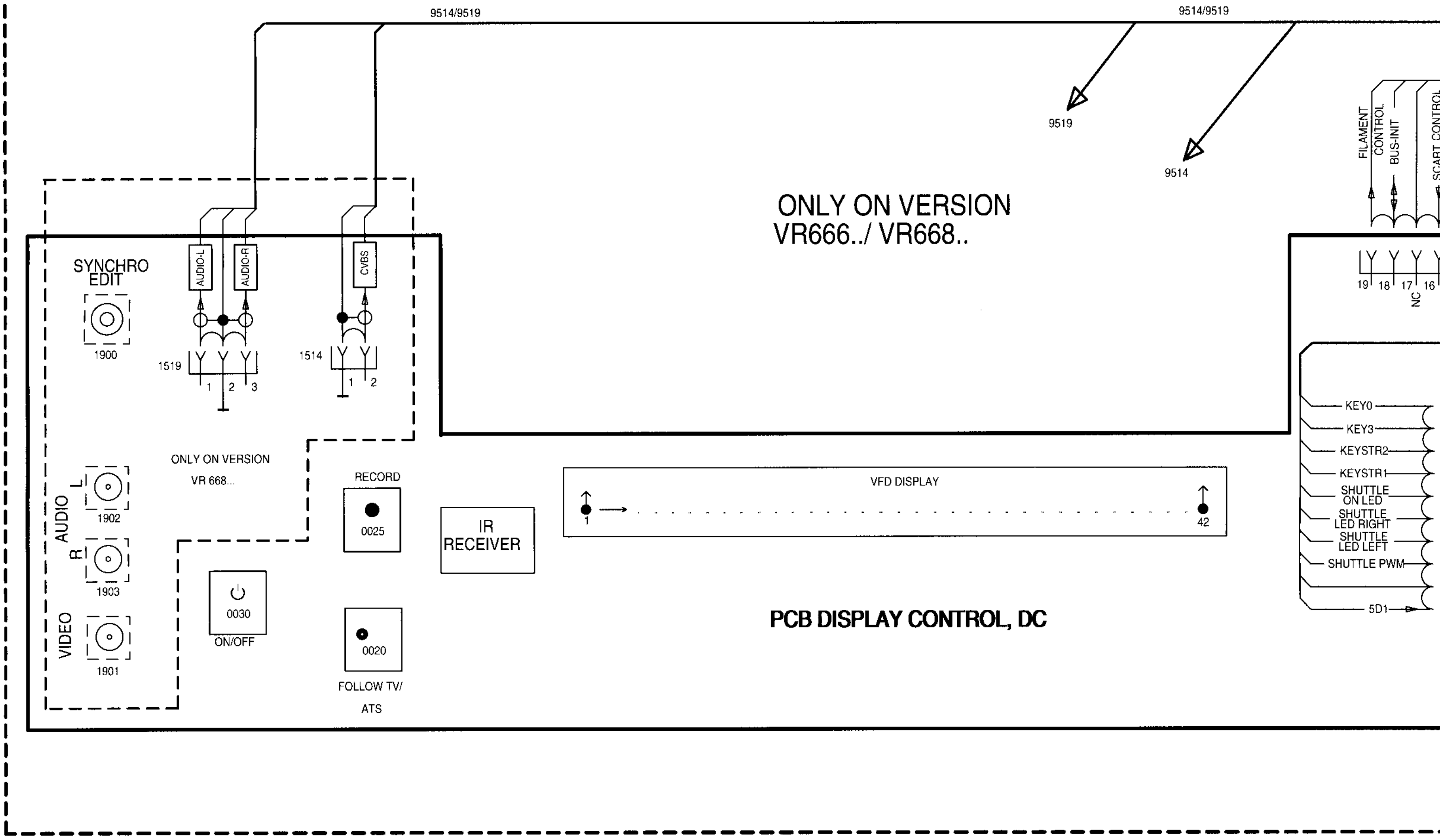


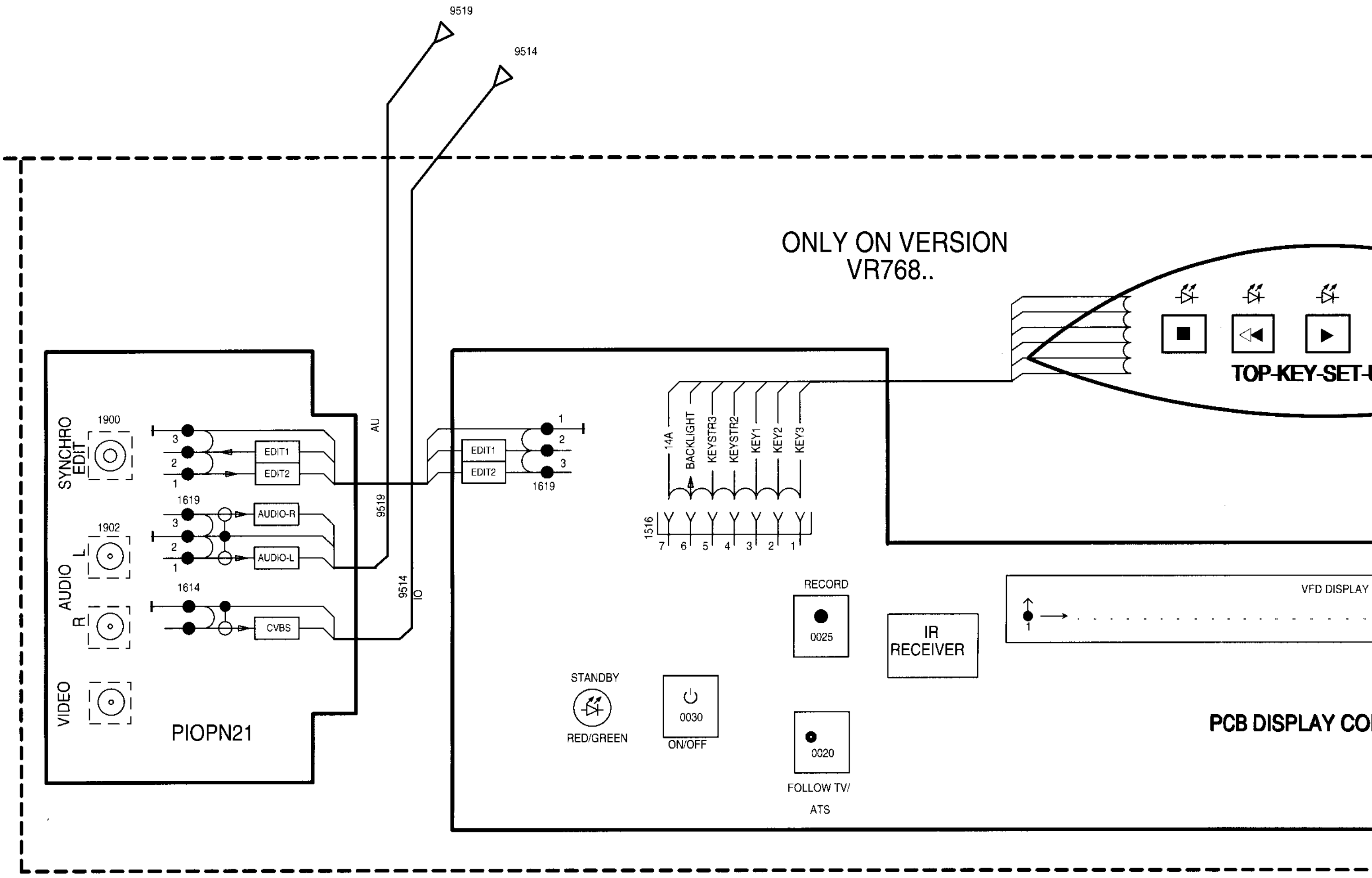
A: AC, 200mV/Div, 20us/Div
Connector 1525 Pin 14

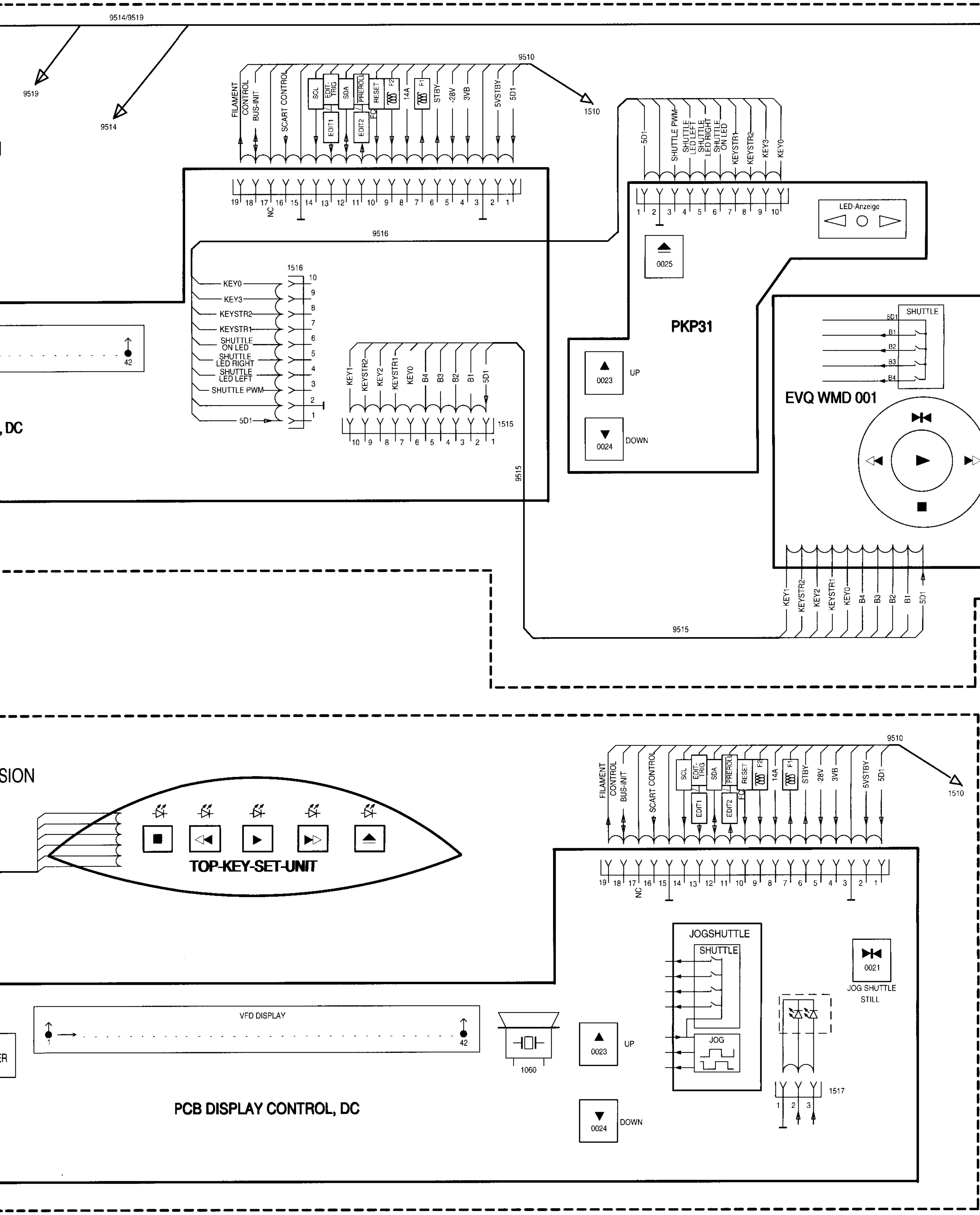
Interconnections:

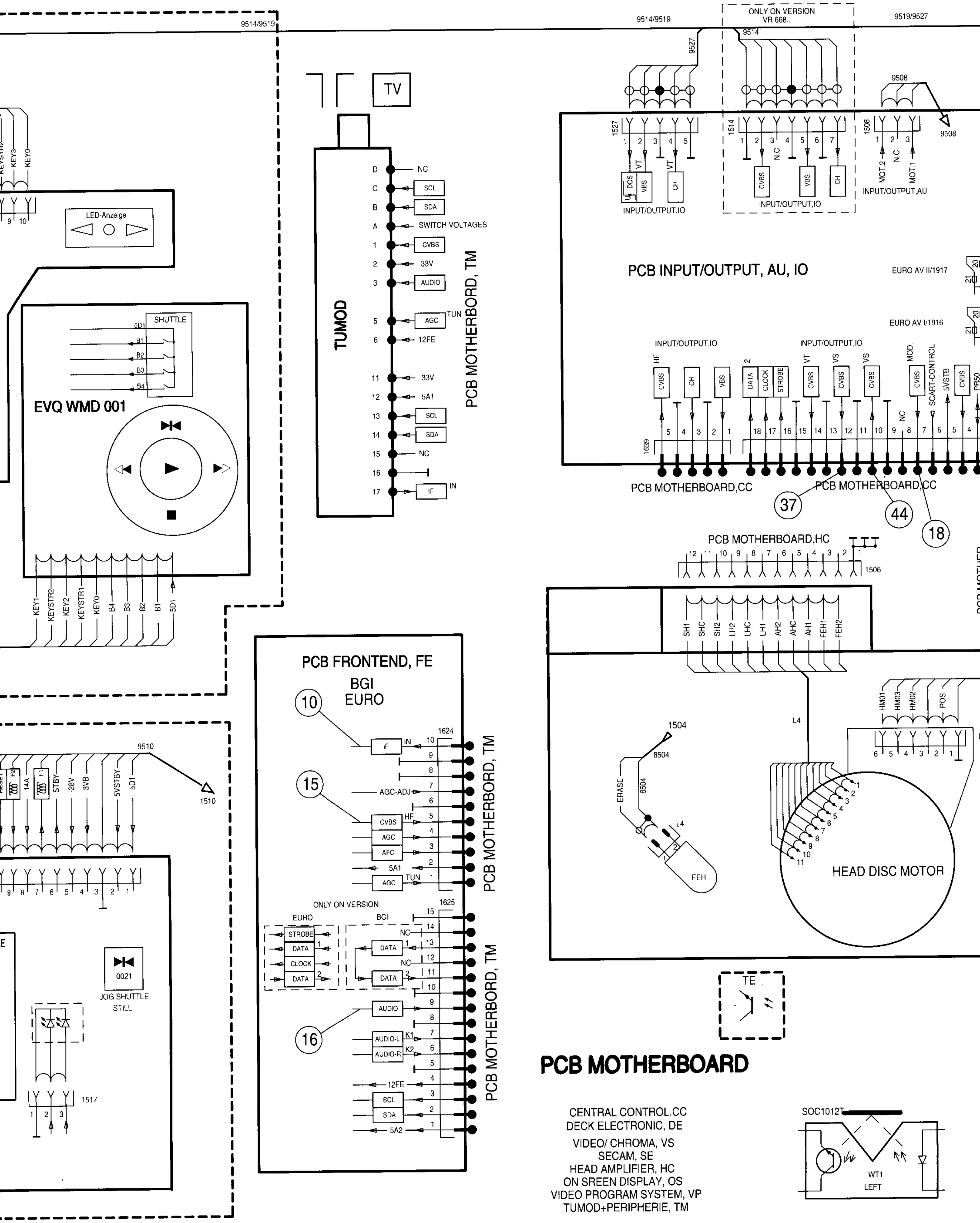
PS page 3-27	SE page 3-35	DE page 3-38	VP page 3-41	VT page 3-46	SF page 3-53
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP page 3-54
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC page 3-57...

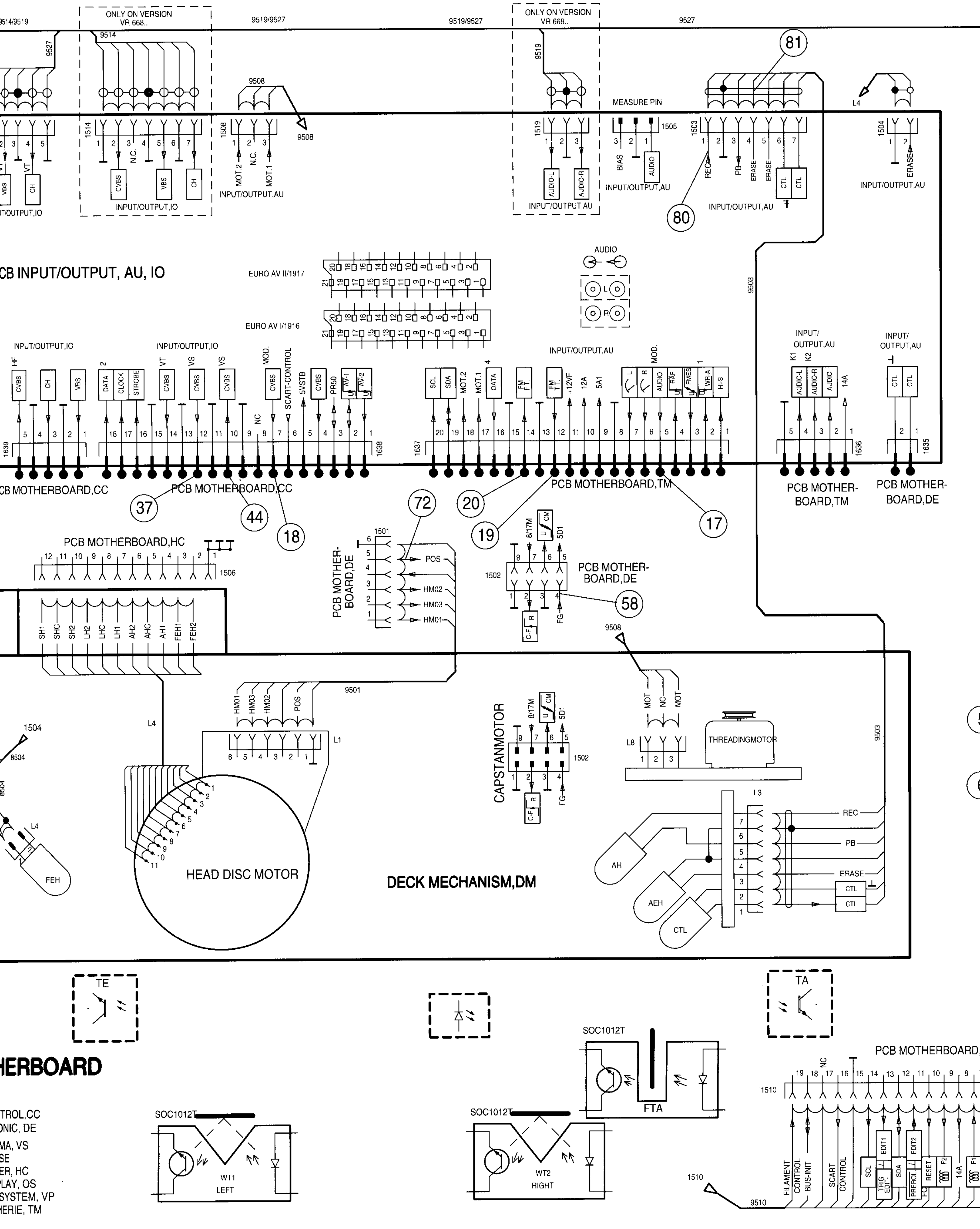
Wiring Diagram VHS

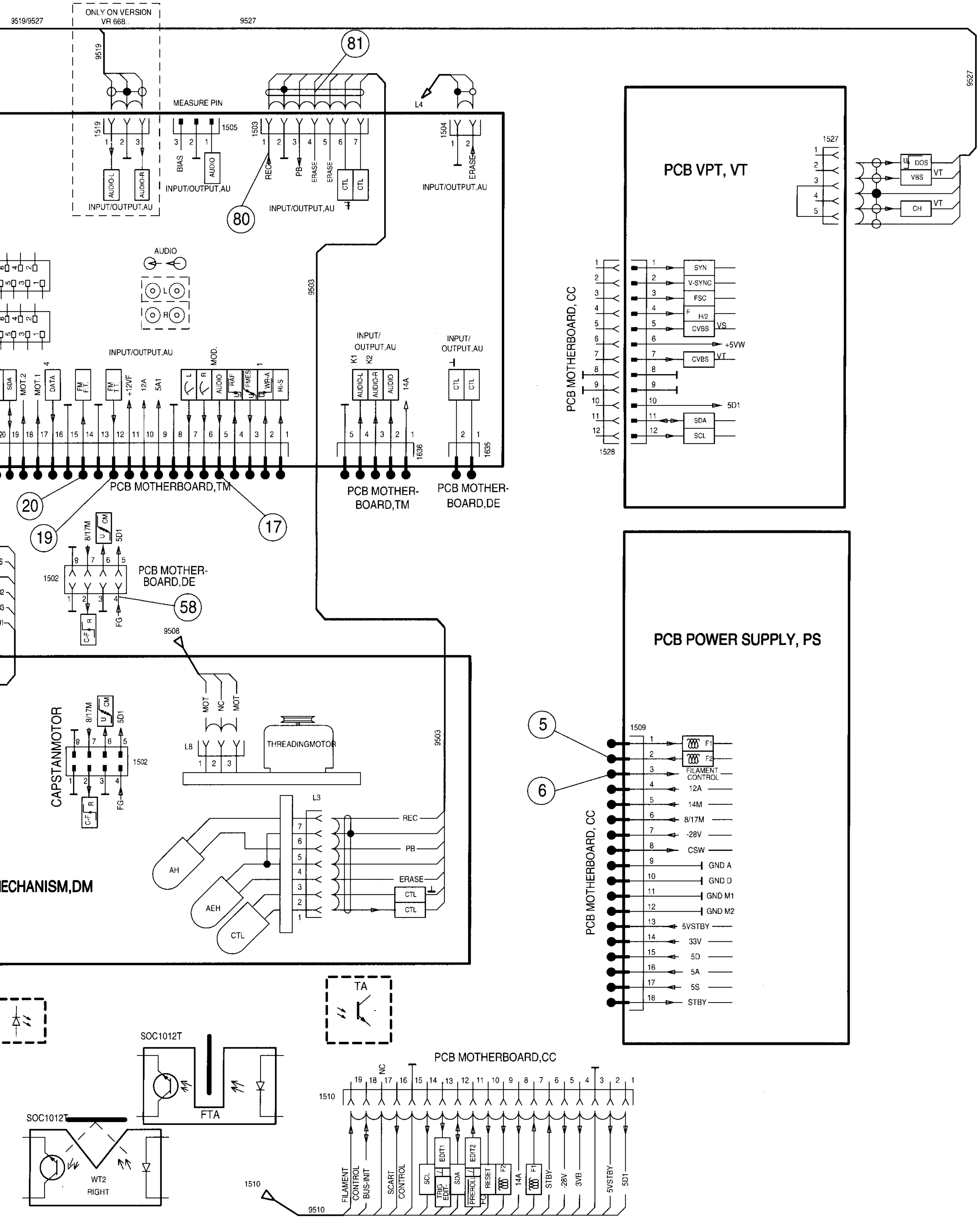

9514/9519
9514/9519
9519
9514
FILAMENT CONTROL
BUS-INIT
SCART CONTROL
19 18 17 16
NC
ONLY ON VERSION VR666../ VR668..
SYNCHRO EDIT
1900
AUDIO-L
AUDIO-R
CVBS
1519
1 2 3
1514
1 2
KEY0
KEY3
KEYSTR2
KEYSTR1
SHUTTLE ON LED
SHUTTLE LED RIGHT
SHUTTLE LED LEFT
SHUTTLE PWM
5D1
ONLY ON VERSION VR 668...
AUDIO L R
1902
1903
VIDEO
1901
RECORD
0025
IR RECEIVER
VFD DISPLAY
1
42
0030
ON/OFF
0020
FOLLOW TV/ ATS
PCB DISPLAY CONTROL, DC


9519
9514
ONLY ON VERSION VR768..
TOP-KEY-SET-
SYNCHRO EDIT
1900
3 2 1
EDIT1
EDIT2
AU
1619
AUDIO-R
AUDIO-L
1902
AUDIO L R
1614
CVBS
VIDEO
PIOPN21
9519
9514 IO
EDIT1
EDIT2
1 2 3
1619
14A
BACKLIGHT
KEYSTR3
KEYSTR2
KEY1
KEY2
KEY3
1516
7 6 5 4 3 2 1
RECORD
0025
IR RECEIVER
VFD DISPLAY
1
STANDBY
RED/GREEN
0030
ON/OFF
0020
FOLLOW TV/ ATS
PCB DISPLAY CO


9514/9519
9519
9514
9510
1510
FILAMENT CONTROL
BUS-INIT
SCART CONTROL
SCL
EDIT-TRIG
SDA
PREROL
RESET
F2
14A
F1
STBY
-28V
3VB
5VSTBY
5D1
EDIT1
EDIT2
FC
19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
NC
9516
1516
KEY0
KEY3
KEYSTR2
KEYSTR1
SHUTTLE ON LED
SHUTTLE LED RIGHT
SHUTTLE LED LEFT
SHUTTLE PWM
5D1
42
, DC
KEY1
KEYSTR2
KEY2
KEYSTR1
KEY0
B4
B3
B2
B1
5D1
1515
9515
SHUTTLE PWM
SHUTTLE LED LEFT
SHUTTLE LED RIGHT
SHUTTLE ON LED
KEYSTR1
KEYSTR2
KEY3
KEY0
1 2 3 4 5 6 7 8 9 10
LED-Anzeige
0025
PKP31
0023
UP
0024
DOWN
SHUTTLE
5D1
B1
B2
B3
B4
EVQ WMD 001
9515
SION
TOP-KEY-SET-UNIT
JOGSHUTTLE
SHUTTLE
JOG
0021
JOG SHUTTLE STILL
1517
VFD DISPLAY
1
42
1060
ER
PCB DISPLAY CONTROL, DC

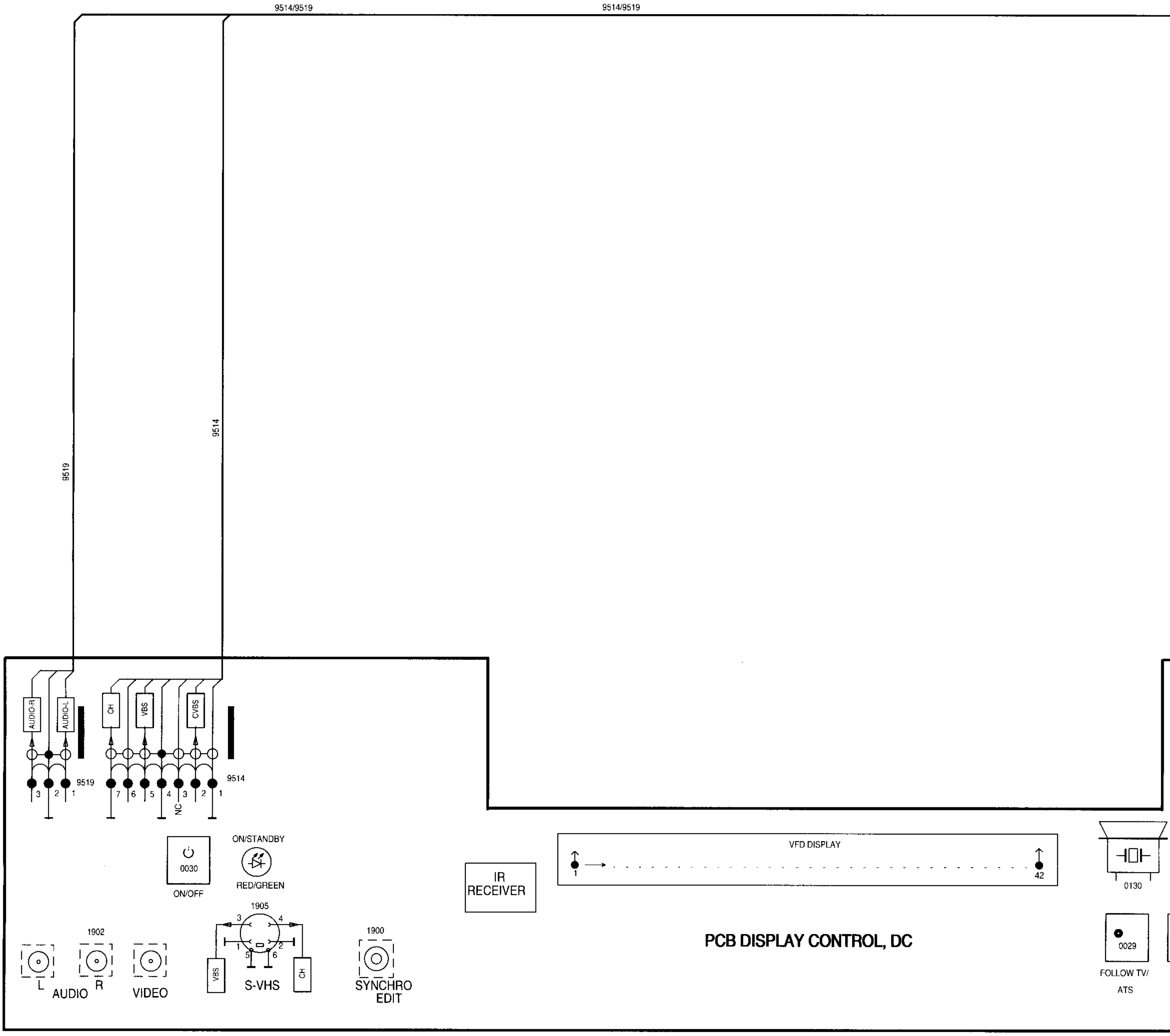

9514/9519
9514/9519
ONLY ON VERSION
VR 668..
9519/9527
9527
9514
9508
9508
1527
1514
1508
VT
VT
DOS
VBS
CH
CVBS
N.C.
VBS
CH
MOT.2
N.C.
MOT.1
INPUT/OUTPUT,IO
INPUT/OUTPUT,IO
INPUT/OUTPUT,AU
TV
TUMOD
D NC
C SCL
B SDA
A SWITCH VOLTAGES
1 CVBS
2 33V
3 AUDIO
5 AGC TUN
6 12FE
11 33V
12 5A1
13 SCL
14 SDA
15 NC
16
17 IF IN
PCB MOTHERBORD, TM
KEYSTR2
KEY3
KEY0
9
10
LED-Anzeige
SHUTTLE
5D1
B1
B2
B3
B4
EVQ WMD 001
KEY1
KEYSTR2
KEY2
KEYSTR1
KEY0
B4
B3
B2
B1
5D1
PCB INPUT/OUTPUT, AU, IO
EURO AV II/1917
EURO AV I/1916
INPUT/OUTPUT,IO
INPUT/OUTPUT,IO
HF
CVBS
CH
VBS
DATA
CLOCK
STROBE
VT
CVBS
VS
CVBS
VS
CVBS
MOD.
CVBS
SCART-CONTROL
5VSTB
CVBS
PR50
1639
PCB MOTHERBOARD,CC
PCB MOTHERBOARD,CC
37
44
18
PCB MOTHERBOARD,HC
1506
SH1
SHC
SH2
LH2
LHC
LH1
AH2
AHC
AH1
FEH1
FEH2
HM01
HM03
HM02
POS
L4
1504
8504
8504
ERASE
L4
FEH
HEAD DISC MOTOR
PCB FRONTEND, FE
BGI
EURO
10
15
16
1624
IF IN
AGC-ADJ
CVBS HF
AGC
AFC
5A1
AGC TUN
1625
ONLY ON VERSION
EURO
BGI
STROBE
DATA
CLOCK
DATA
NC
DATA
NC
DATA
AUDIO
AUDIO-L K1
AUDIO-R K2
12FE
SCL
SDA
5A2
PCB MOTHERBORD, TM
PCB MOTHERBORD, TM
PCB MOTHERBORD, TM
9510
1510
RESET
F2
14A
F1
STBY
-28V
3VB
5VSTBY
5D1
0021
JOG SHUTTLE
STILL
1517
TE
PCB MOTHERBOARD
CENTRAL CONTROL,CC
DECK ELECTRONIC, DE
VIDEO/ CHROMA, VS
SECAM, SE
HEAD AMPLIFIER, HC
ON SREEN DISPLAY, OS
VIDEO PROGRAM SYSTEM, VP
TUMOD+PERIPHERIE, TM
SOC1012T
WT1
LEFT

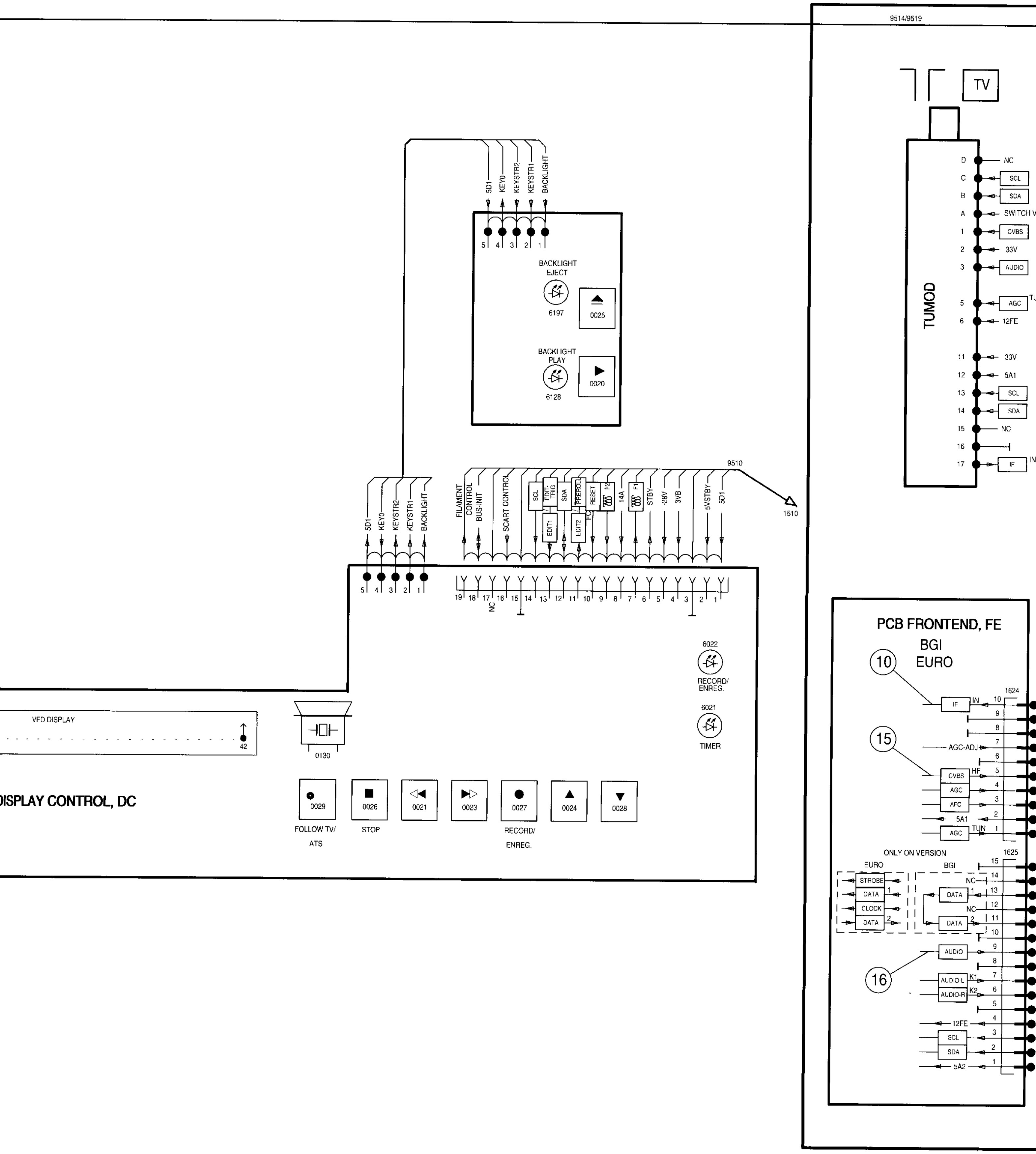

ONLY ON VERSION VR 668..
9514/9519
9519/9527
9527
9514
9519
9508
MEASURE PIN
81
80
1514
1508
1519
1505
1503
1504
L4
N.C.
MOT.2
MOT.1
CVBS
VBS
CH
VT
BIAS
AUDIO
AUDIO-L
AUDIO-R
REC
PB
ERASE
CTL
INPUT/OUTPUT,IO
INPUT/OUTPUT,AU
PCB INPUT/OUTPUT, AU, IO
EURO AV II/1917
EURO AV I/1916
AUDIO
9503
HF
DATA
CLOCK
STROBE
VS
MOD.
SCART-CONTROL
5V/STB
PR50
AV-1
AV-2
NC
SCL
SDA
FM F.T.
FM T.T.
+12VF
12A
5A1
RAF
FMES
WR-A
HI-S
K1
K2
14A
1639
1638
1637
1636
1635
PCB MOTHERBOARD,CC
PCB MOTHERBOARD,TM
PCB MOTHER-BOARD,TM
PCB MOTHER-BOARD,DE
37
44
18
72
20
19
17
58
PCB MOTHERBOARD,HC
1506
1501
POS
HM02
HM03
HM01
PCB MOTHER-BOARD,DE
8/17M
CM
5D1
1502
C-F
R
FG
SH1
SHC
SH2
LH2
LHC
LH1
AH2
AHC
AH1
FEH1
FEH2
9501
L1
L4
1504
8504
FEH
HEAD DISC MOTOR
CAPSTANMOTOR
MOT
NC
L8
THREADINGMOTOR
L3
AH
AEH
CTL
DECK MECHANISM,DM
TE
TA
SOC1012T
FTA
WT1 LEFT
WT2 RIGHT
HERBOARD
TROL,CC
ONIC, DE
MA, VS
SE
ER, HC
PLAY, OS
SYSTEM, VP
HERIE, TM
PCB MOTHERBOARD,
1510
9510
FILAMENT CONTROL
BUS-INIT
SCART CONTROL
EDIT1
EDIT2
TRIG EDIT
PREROLL
RESET
F2
F1

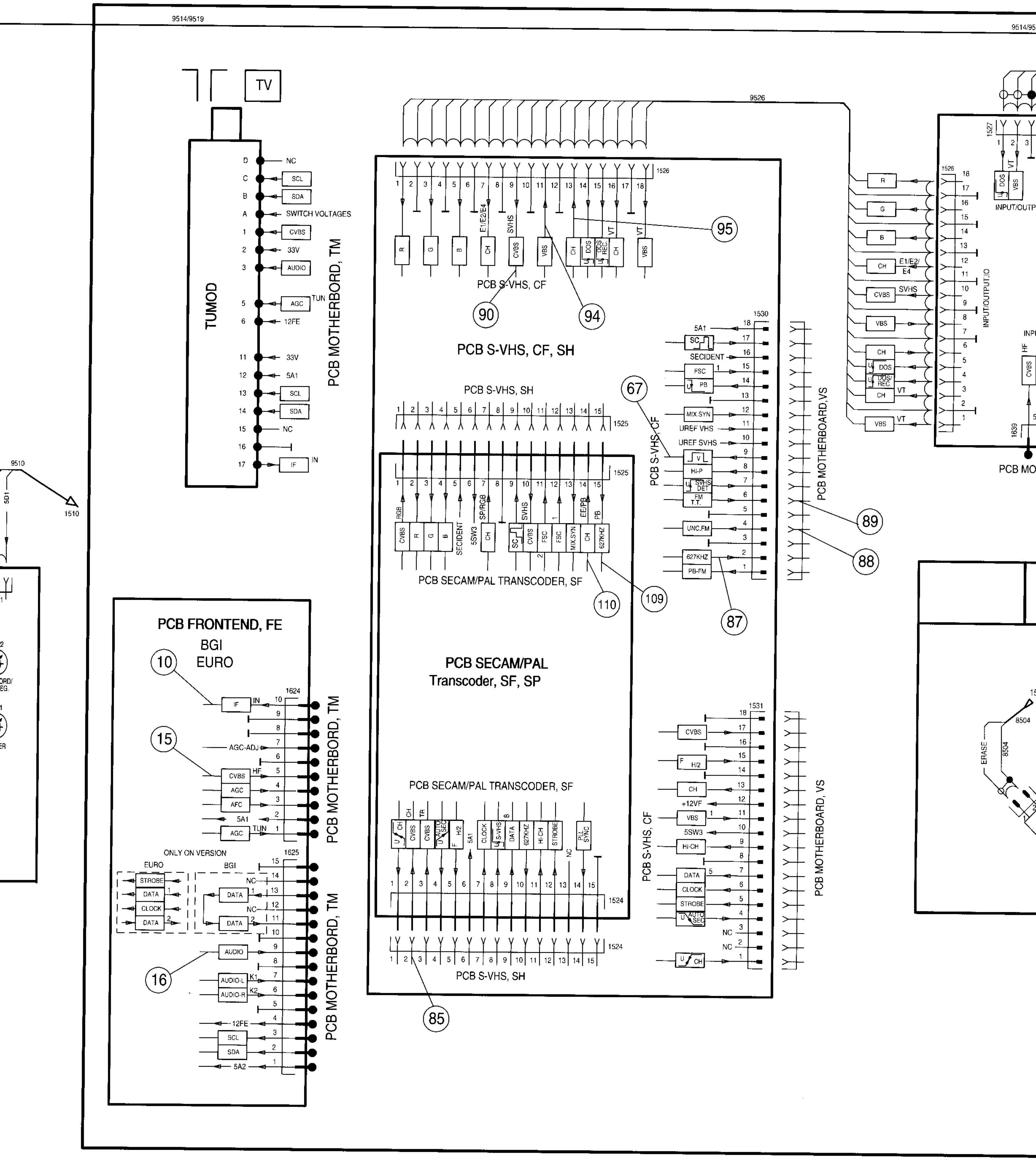


9519/9527
ONLY ON VERSION VR 668..
9527
9519
81
MEASURE PIN
1519
1505
1503
1504
L4
AUDIO-L
AUDIO-R
BIAS
AUDIO
REC
PB
ERASE
CTL
ERASE
INPUT/OUTPUT,AU
80
1527
PCB VPT, VT
DOS
VBS
VT
CH
AUDIO
L
R
9503
SDA
MOT.2
MOT.1
DATA
FM F.T.
FM T.T.
+12VF
12A
5A1
MOD.
RAF
FMES
WR-A
HI-S
INPUT/
OUTPUT,AU
K1
K2
14A
1636
1635
PCB MOTHERBOARD,TM
PCB MOTHER-BOARD,TM
PCB MOTHER-BOARD,DE
20
19
17
PCB MOTHERBOARD, CC
1528
SYN
V-SYNC
FSC
H/2
CVBS
VS
+5VW
5D1
SCL
8/17M
CM
5D1
1502
PCB MOTHER-BOARD,DE
58
C-F
FG
9508
PCB POWER SUPPLY, PS
CAPSTANMOTOR
MOT
NC
THREADINGMOTOR
L8
L3
AH
AEH
CTL
MECHANISM,DM
5
6
1509
F1
F2
FILAMENT CONTROL
12A
14M
8/17M
-28V
CSW
GND A
GND D
GND M1
GND M2
5VSTBY
33V
5D
5A
5S
STBY
TA
SOC1012T
FTA
SOC1012T
WT2
RIGHT
PCB MOTHERBOARD,CC
1510
9510
FILAMENT CONTROL
BUS-INIT
SCART CONTROL
TRIG EDIT-
EDIT1
SDA
PREROLL
EDIT2
RESET
FO
14A
STBY
-28V
3VB
5VSTBY
5D1

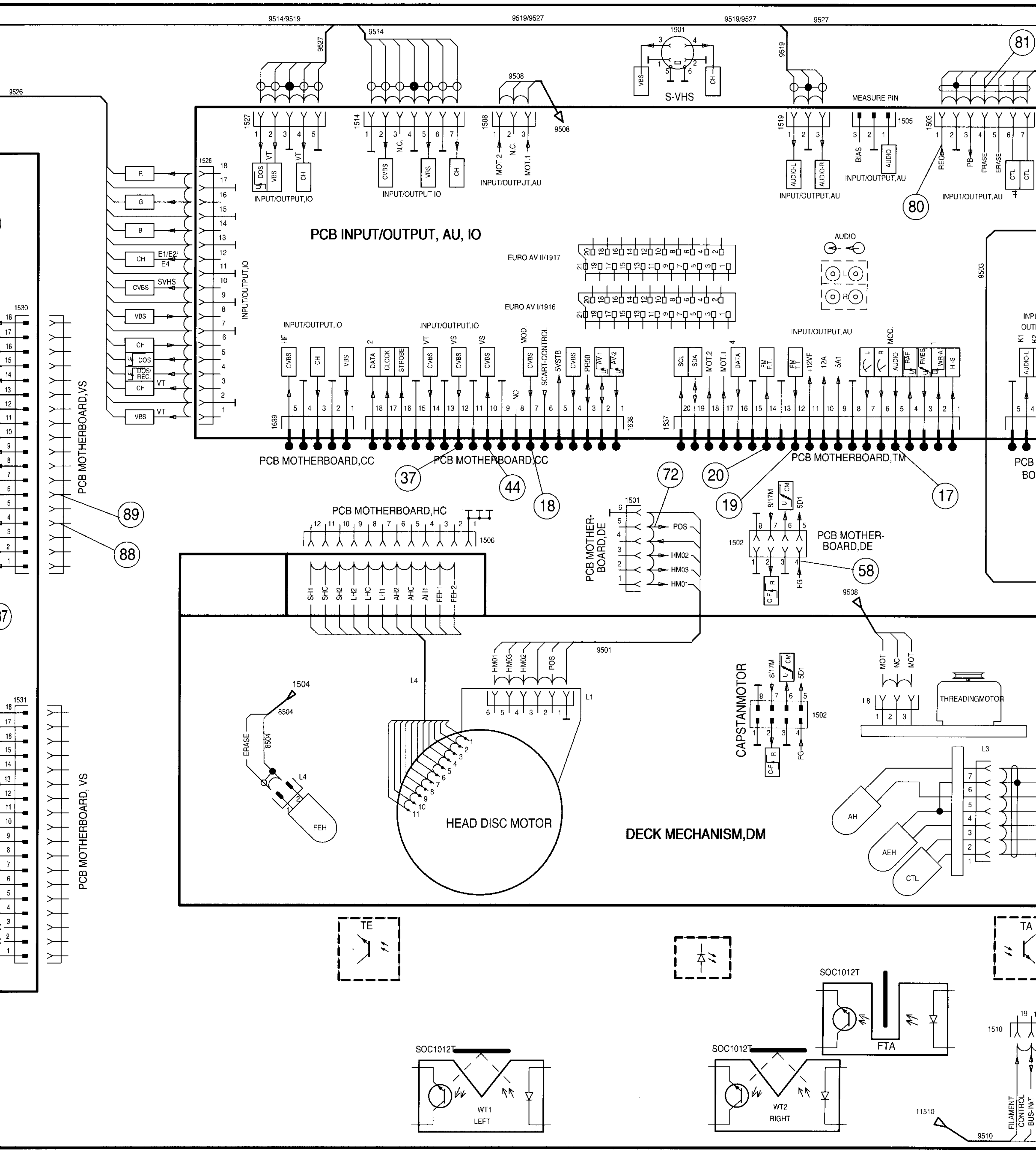
Wiring Diagram VR967

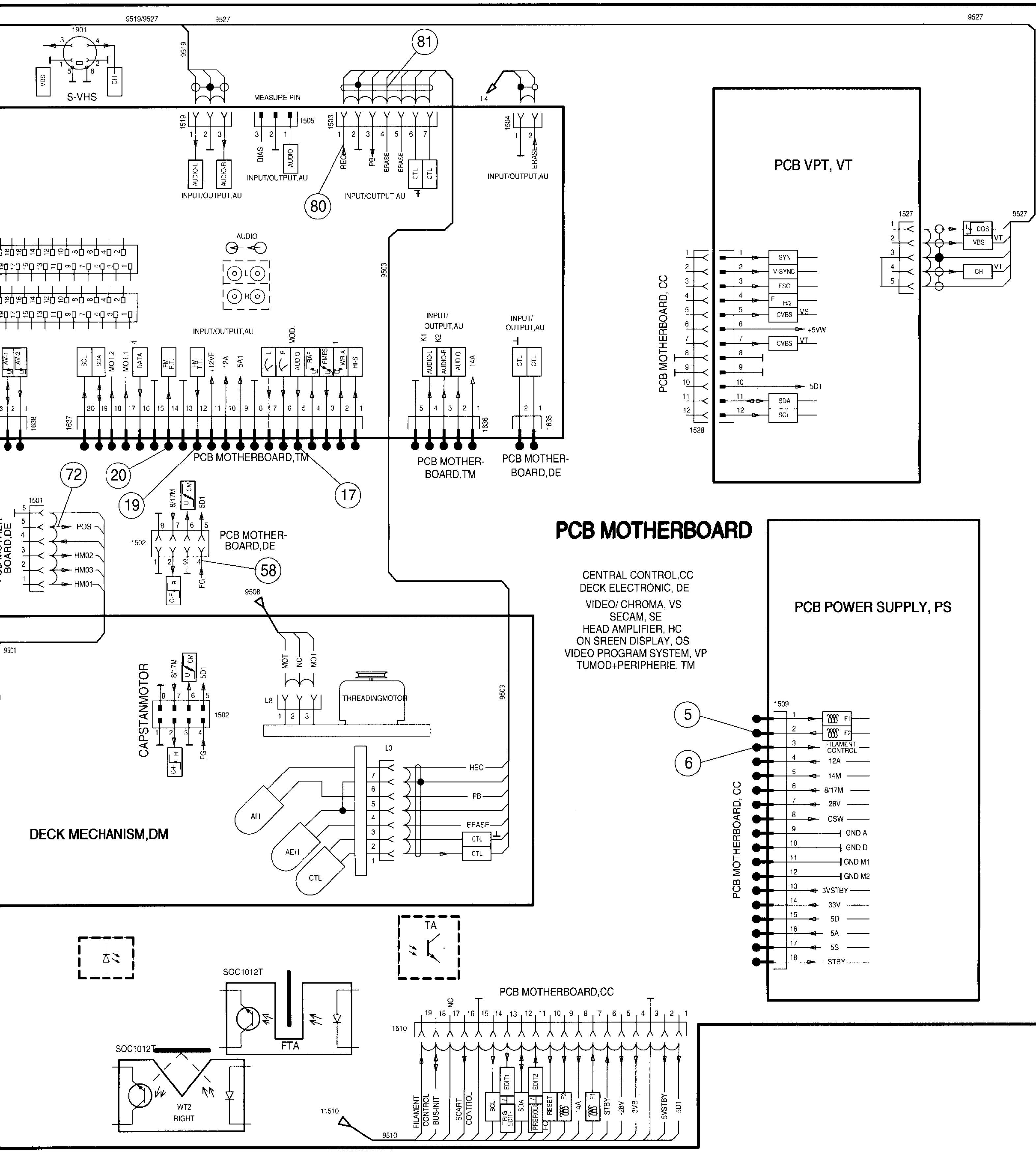

9514/9519
9514/9519
9519
9514
AUDIO-R
AUDIO-L
9519
3
2
1
CH
VBS
CVBS
9514
7
6
5
4
3
2
1
NC
0030
ON/OFF
ON/STANDBY
RED/GREEN
IR RECEIVER
VFD DISPLAY
1
42
0130
1905
3
4
1
2
5
6
1902
1900
L
R
AUDIO
VIDEO
VBS
S-VHS
CH
SYNCHRO EDIT
PCB DISPLAY CONTROL, DC
0029
FOLLOW TV/ ATS


9514/9519
TV
TUMOD
D
NC
C
SCL
B
SDA
A
SWITCH V
1
CVBS
2
33V
3
AUDIO
5
AGC
TU
6
12FE
11
33V
12
5A1
13
SCL
14
SDA
15
NC
16
17
IF
IN
5D1
KEY0
KEYSTR2
KEYSTR1
BACKLIGHT
5
4
3
2
1
BACKLIGHT
EJECT
6197
0025
BACKLIGHT
PLAY
6128
0020
9510
1510
FILAMENT CONTROL
BUS-INIT
SCART CONTROL
SCL
EDIT-TRIG
SDA
PREROLL
RESET
F2
14A
F1
STBY
-28V
3VB
5VSTBY
5D1
EDIT1
EDIT2
FC
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
NC
6022
RECORD/
ENREG.
6021
TIMER
VFD DISPLAY
42
0130
DISPLAY CONTROL, DC
0029
FOLLOW TV/
ATS
0026
STOP
0021
0023
0027
RECORD/
ENREG.
0024
0028
PCB FRONTEND, FE
BGI
EURO
10
15
16
1624
IF
IN
AGC-ADJ
CVBS
HF
AGC
AFC
5A1
AGC
TUN
ONLY ON VERSION
1625
EURO
BGI
STROBE
DATA
CLOCK
DATA
NC
DATA
NC
DATA
AUDIO
AUDIO-L
K1
AUDIO-R
K2
12FE
SCL
SDA
5A2

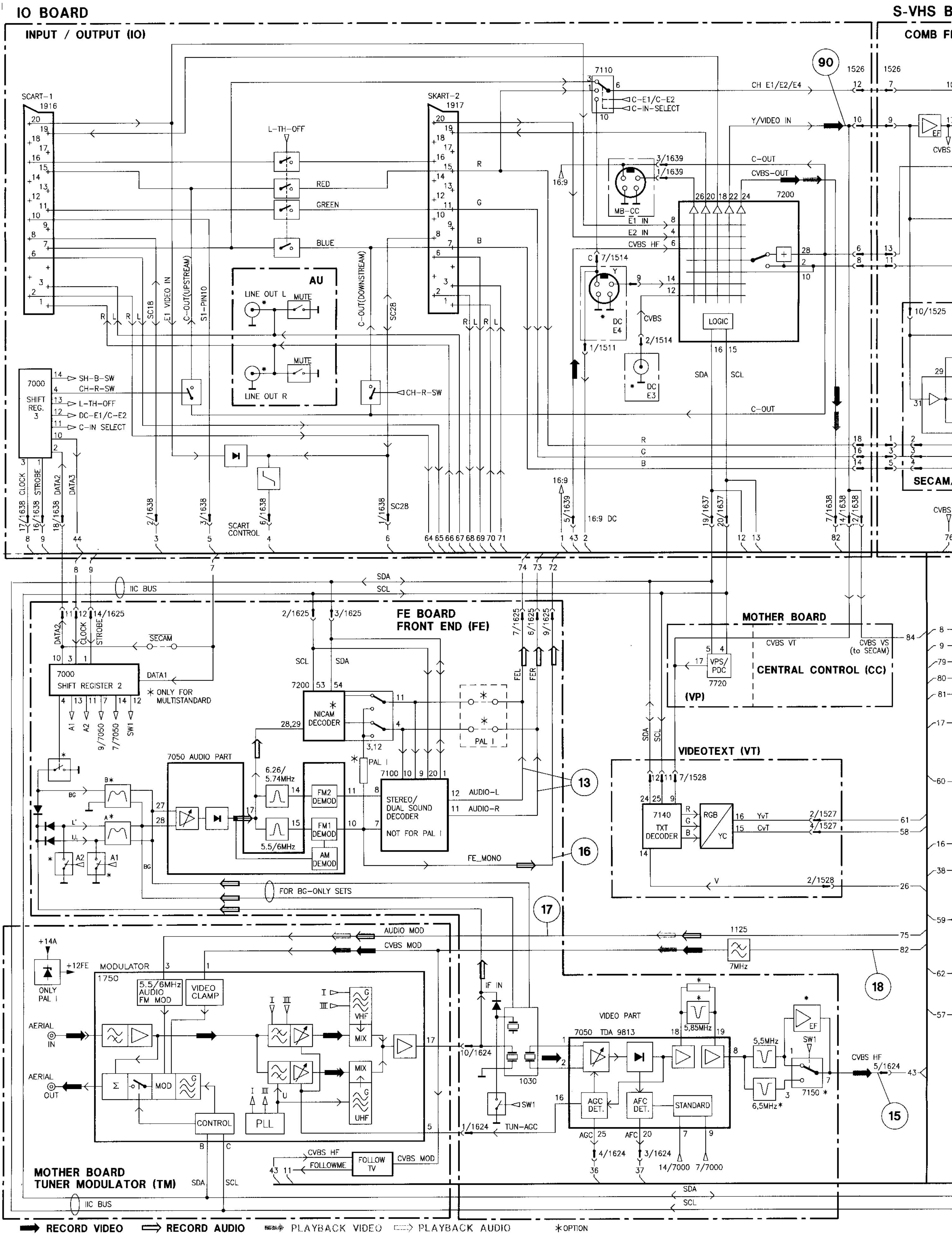


9514/9519
TV
TUMOD
D NC
C SCL
B SDA
A SWITCH VOLTAGES
1 CVBS
2 33V
3 AUDIO
5 AGC TUN
6 12FE
11 33V
12 5A1
13 SCL
14 SDA
15 NC
16
17 IF IN
PCB MOTHERBORD, TM
9510
501
1510
9526
1526
PCB S-VHS, CF
PCB S-VHS, CF, SH
PCB S-VHS, SH
1525
PCB SECAM/PAL TRANSCODER, SF
PCB SECAM/PAL
Transcoder, SF, SP
1524
R
G
B
CH
CVBS
VBS
DOS
DOS/REC
VT
E1/E2/E4
SVHS
RGB
SECIDENT
5SW3
SP/RGB
SC
FSC
MIX.SYN
EE/PB
PB
627KHZ
1530
5A1
SC
SECIDENT
FSC
PB
MIX.SYN
UREF VHS
UREF SVHS
Hi-P
SVHS DET
FM T.T.
UNC.FM
627KHZ
PB-FM
PCB S-VHS, CF
PCB MOTHERBOARD, VS
1531
CVBS
F H/2
CH
+12VF
VBS
5SW3
HI-CH
DATA
CLOCK
STROBE
AUTO SEC
NC
H/2
5A1
S-VHS
HI-CH
PLL SYNC
PCB FRONTEND, FE
BGI
EURO
1624
IF IN
AGC-ADJ
CVBS HF
AGC
AFC
5A1
AGC TUN
ONLY ON VERSION
EURO
BGI
1625
STROBE
DATA
CLOCK
DATA
NC
AUDIO
AUDIO-L K1
AUDIO-R K2
12FE
SCL
SDA
5A2
PCB MOTHERBORD, TM
1527
INPUT/OUTPUT.IO
INPUT/OUTP
E1/E2/E4
SVHS
VT
1639
PCB MO
HF
CVBS
INPI
8504
ERASE
(10)
(15)
(16)
(67)
(85)
(87)
(88)
(89)
(90)
(94)
(95)
(109)
(110)

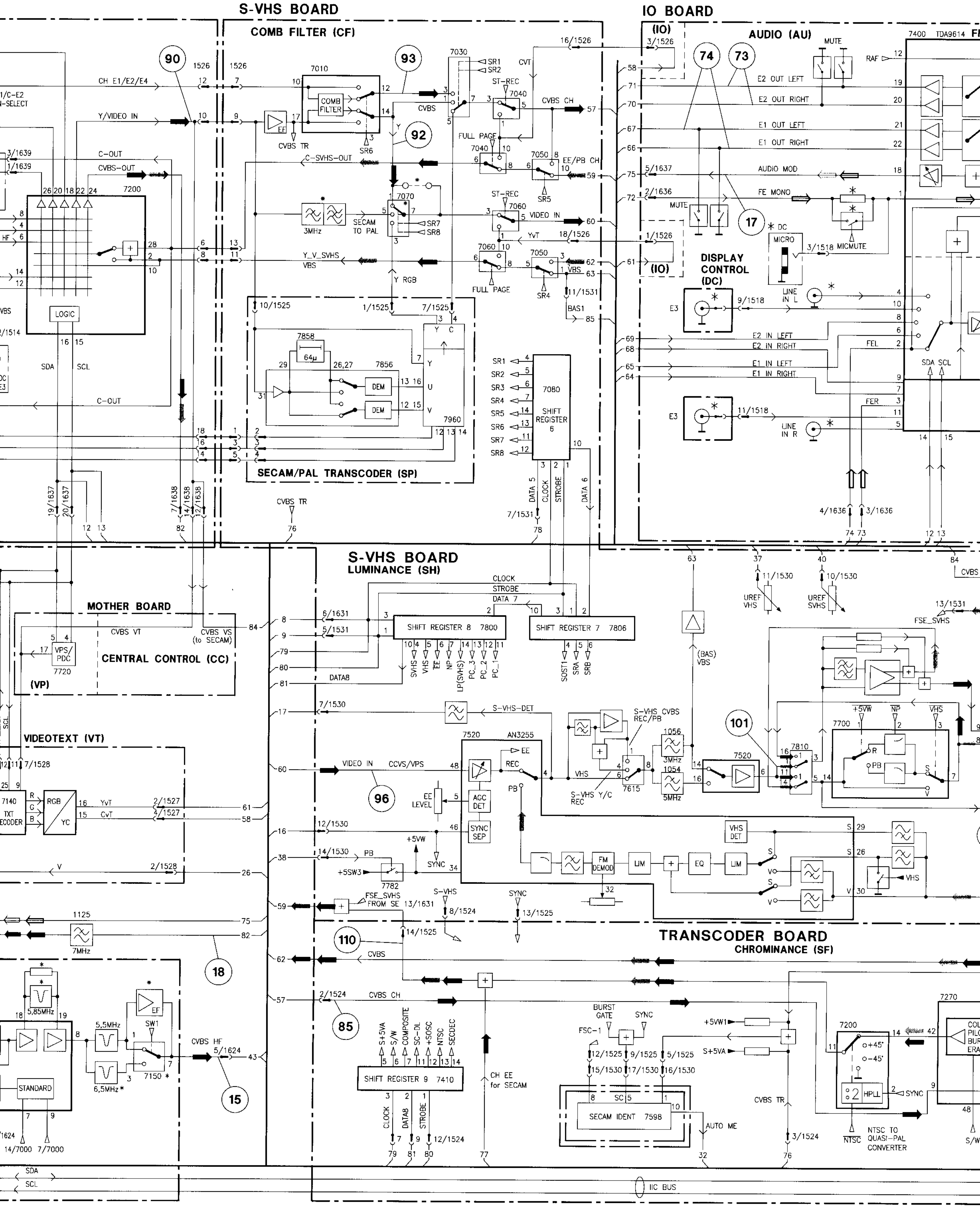

9514/9519
9519/9527
9519/9527
9527
9527
9514
9508
9526
1901
S-VHS
VBS
CH
9519
MEASURE PIN
81
1527
1514
1508
1519
1505
1503
9508
INPUT/OUTPUT,IO
INPUT/OUTPUT,IO
INPUT/OUTPUT,AU
INPUT/OUTPUT,AU
INPUT/OUTPUT,AU
INPUT/OUTPUT,AU
MOT.2
N.C.
MOT.1
AUDIO-L
AUDIO-R
BIAS
AUDIO
REC
PB
ERASE
CTL
80
1526
R
G
B
CH
E1/E2/E4
CVBS
SVHS
VBS
DOS
DOS/REC.
VT
INPUT/OUTPUT,IO
PCB INPUT/OUTPUT, AU, IO
EURO AV II/1917
EURO AV I/1916
AUDIO
9503
1530
PCB MOTHERBOARD,VS
HF
CVBS
DATA
CLOCK
STROBE
MOD
SCART-CONTROL
5VSTB
PR50
AV-1
AV-2
SCL
SDA
DATA
FM F.T.
FM T.T.
+12VF
12A
5A1
RAF
FMES
WR-A
HI-S
1639
1638
1637
PCB MOTHERBOARD,CC
PCB MOTHERBOARD,CC
PCB MOTHERBOARD,TM
37
44
18
72
20
19
17
89
88
PCB MOTHERBOARD,HC
1506
1501
PCB MOTHER-BOARD,DE
POS
HM02
HM03
HM01
8/17M
5D1
1502
PCB MOTHER-BOARD,DE
C-F
FG
58
9508
SH1
SHC
SH2
LH2
LHC
LH1
AH2
AHC
AH1
FEH1
FEH2
9501
L4
1504
8504
ERASE
L4
FEH
1531
PCB MOTHERBOARD, VS
HEAD DISC MOTOR
L1
CAPSTANMOTOR
MOT
NC
THREADINGMOTOR
L8
L3
AH
AEH
CTL
DECK MECHANISM,DM
TE
TA
SOC1012T
FTA
SOC1012T
WT1
LEFT
SOC1012T
WT2
RIGHT
1510
11510
9510
FILAMENT
CONTROL
BUS-INIT

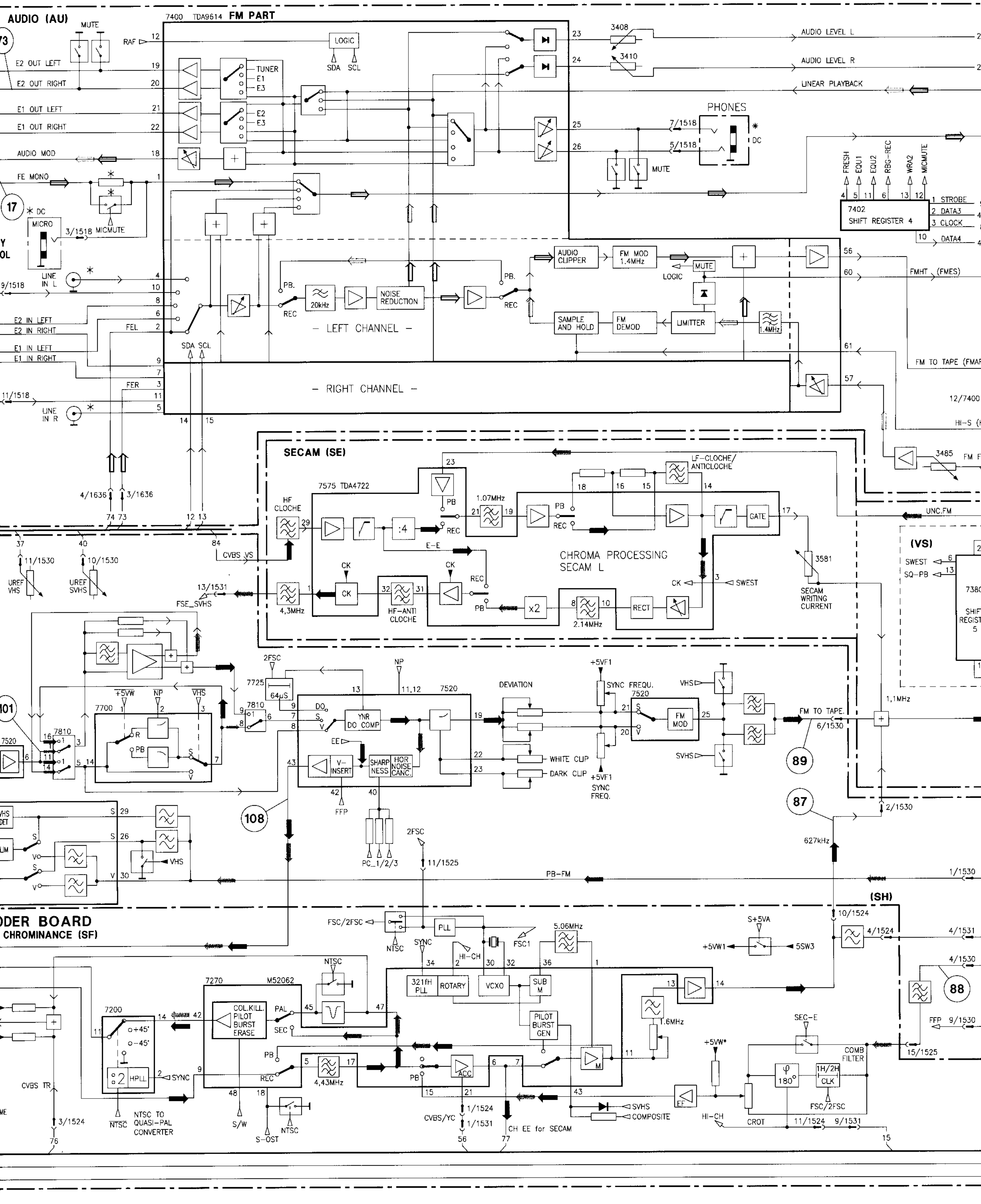

PCB MOTHERBOARD
CENTRAL CONTROL,CC
DECK ELECTRONIC, DE
VIDEO/ CHROMA, VS
SECAM, SE
HEAD AMPLIFIER, HC
ON SREEN DISPLAY, OS
VIDEO PROGRAM SYSTEM, VP
TUMOD+PERIPHERIE, TM
PCB VPT, VT
PCB POWER SUPPLY, PS
DECK MECHANISM,DM
S-VHS
1901
VBS
CH
9519/9527
9527
9519
MEASURE PIN
1519
1505
1503
1504
AUDIO-L
AUDIO-R
BIAS
AUDIO
REC
PB
ERASE
CTL
INPUT/OUTPUT,AU
L4
81
80
AUDIO
9503
INPUT/OUTPUT,AU
MOD.
SCL
SDA
MOT.2
MOT.1
DATA
FM F.T.
+12VF
12A
5A1
RAF
FMES
WR-A
HI-S
AV-1
AV-2
INPUT/ OUTPUT,AU
K1
K2
14A
1638
1637
1636
1635
PCB MOTHERBOARD,TM
PCB MOTHER- BOARD,TM
PCB MOTHER- BOARD,DE
72
20
19
17
58
1501
POS
HM02
HM03
HM01
1502
8/17M
5D1
CM
C-F
R
FG
PCB MOTHER- BOARD,DE
9508
9501
CAPSTANMOTOR
MOT
NC
L8
THREADINGMOTOR
L3
AH
AEH
CTL
REC
PB
ERASE
PCB MOTHERBOARD, CC
1528
1527
SYN
V-SYNC
FSC
H/2
CVBS
VS
+5VW
VT
5D1
SDA
SCL
DOS
1509
F1
F2
FILAMENT CONTROL
12A
14M
8/17M
-28V
CSW
GND A
GND D
GND M1
GND M2
5VSTBY
33V
5D
5A
5S
STBY
5
6
TA
SOC1012T
FTA
WT2 RIGHT
PCB MOTHERBOARD,CC
1510
11510
9510
FILAMENT CONTROL
BUS-INIT
SCART CONTROL
EDIT1
EDIT2
TRIG EDIT
PREROLL
RESET
3VB
5VSTBY

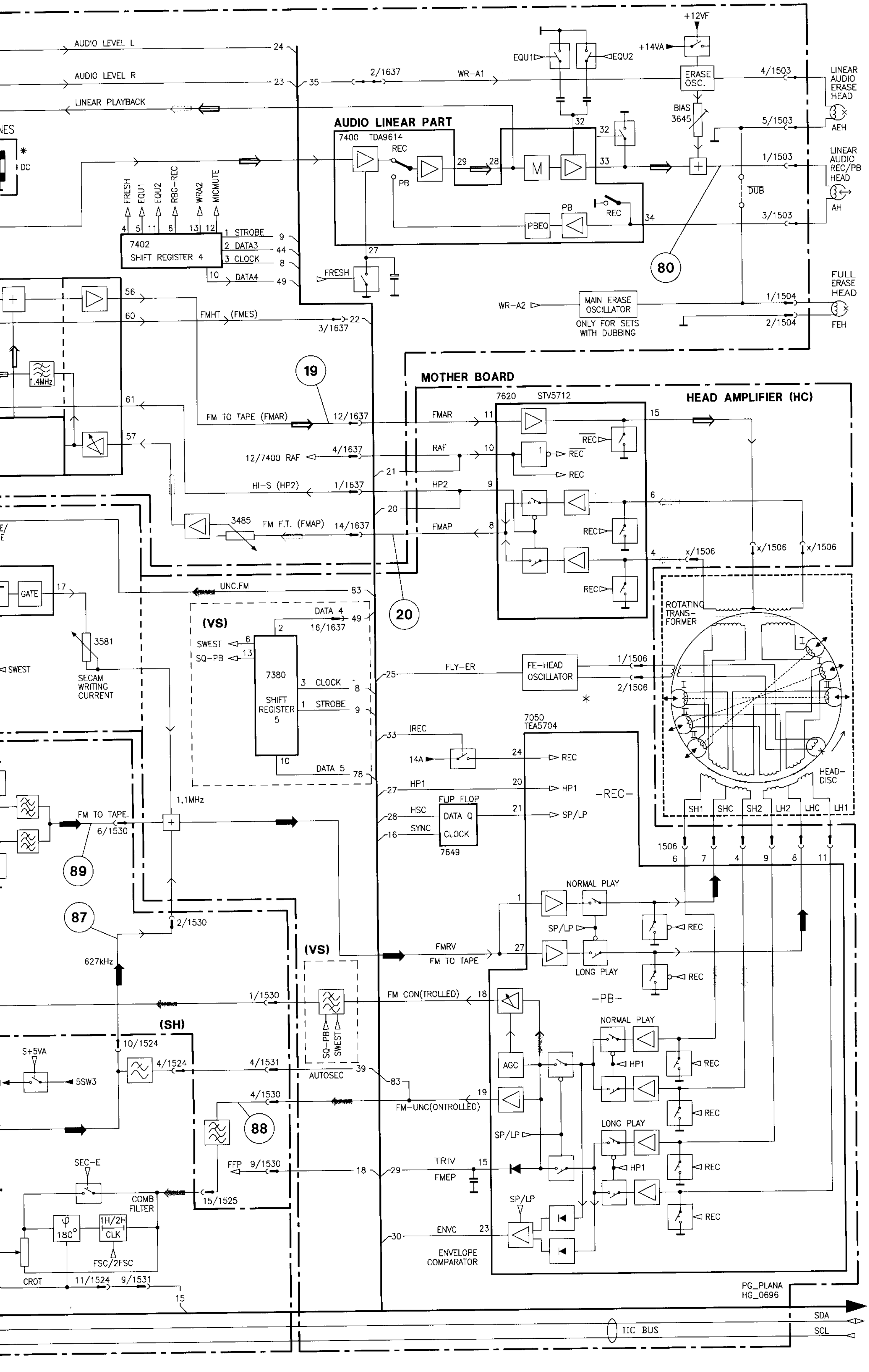
Block Diagram Analog S-VHS

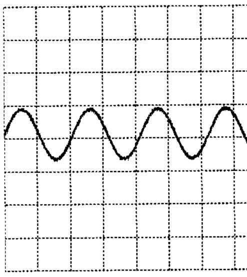

IO BOARD
INPUT / OUTPUT (IO)
S-VHS B
COMB F
SCART-1
1916
SKART-2
1917
L-TH-OFF
RED
GREEN
BLUE
AU
LINE OUT L
LINE OUT R
MUTE
SC18
E1 VIDEO IN
C-OUT(UPSTREAM)
S1-PIN10
C-OUT(DOWNSTREAM)
SC28
7000
SHIFT REG. 3
SH-B-SW
CH-R-SW
L-TH-OFF
DC-E1/C-E2
C-IN SELECT
CLOCK
STROBE
DATA2
DATA3
SCART CONTROL
7110
C-E1/C-E2
C-IN-SELECT
CH E1/E2/E4
Y/VIDEO IN
C-OUT
CVBS-OUT
MB-CC
E1 IN
E2 IN
CVBS HF
7200
LOGIC
SDA
SCL
16:9
16:9 DC
DC E4
DC E3
CVBS
90
1526
SECAM
IIC BUS
FE BOARD
FRONT END (FE)
7000
SHIFT REGISTER 2
DATA1
SECAM
* ONLY FOR MULTISTANDARD
NICAM DECODER
PAL I
7050 AUDIO PART
6.26/5.74MHz
5.5/6MHz
FM2 DEMOD
FM1 DEMOD
AM DEMOD
7100
STEREO/ DUAL SOUND DECODER
NOT FOR PAL I
AUDIO-L
AUDIO-R
FE_MONO
FEL
FER
13
16
17
FOR BG-ONLY SETS
MOTHER BOARD
CENTRAL CONTROL (CC)
VPS/ PDC
7720
(VP)
CVBS VT
CVBS VS (to SECAM)
VIDEOTEXT (VT)
7140 TXT DECODER
RGB YC
YvT
CvT
AUDIO MOD
CVBS MOD
1125
7MHz
18
+14A
+12FE
ONLY PAL I
MODULATOR
1750
5.5/6MHz AUDIO FM MOD
VIDEO CLAMP
AERIAL IN
AERIAL OUT
MOD
VHF
MIX
UHF
CONTROL
PLL
IF IN
1030
SW1
TUN-AGC
VIDEO PART
7050 TDA 9813
5,85MHz
5,5MHz
6,5MHz*
7150 *
AGC DET.
AFC DET.
STANDARD
CVBS HF
15
FOLLOW TV
FOLLOWME
MOTHER BOARD
TUNER MODULATOR (TM)
RECORD VIDEO
RECORD AUDIO
PLAYBACK VIDEO
PLAYBACK AUDIO
*OPTION

PCS 79795

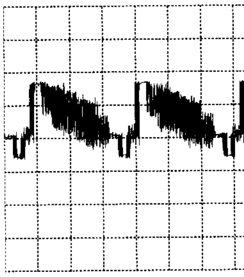

S-VHS BOARD
COMB FILTER (CF)
IO BOARD
(IO)
AUDIO (AU)
7400 TDA9614
DISPLAY CONTROL (DC)
SECAM/PAL TRANSCODER (SP)
S-VHS BOARD
LUMINANCE (SH)
MOTHER BOARD
CENTRAL CONTROL (CC)
(VP)
VIDEOTEXT (VT)
TRANSCODER BOARD
CHROMINANCE (SF)
7010
COMB FILTER
7030
7040
7050
7060
7070
7080
SHIFT REGISTER 6
7200
LOGIC
7858
7856
7960
DEM
SHIFT REGISTER 8 7800
SHIFT REGISTER 7 7806
7520 AN3255
AGC DET
SYNC SEP
FM DEMOD
LIM
EQ
VHS DET
7615
7810
7700
7720
VPS/PDC
7140
TXT DECODER
RGB
YC
7782
7150
STANDARD
SHIFT REGISTER 9 7410
SECAM IDENT 7598
HPLL
7270
NTSC TO QUASI-PAL CONVERTER
IIC BUS
SDA
SCL
CH E1/E2/E4
Y/VIDEO IN
C-OUT
CVBS-OUT
C-SVHS-OUT
Y_V_SVHS VBS
CVBS CH
VIDEO IN
CVBS TR
FULL PAGE
ST-REC
SECAM TO PAL
E2 OUT LEFT
E2 OUT RIGHT
E1 OUT LEFT
E1 OUT RIGHT
AUDIO MOD
FE MONO
MUTE
MICRO
MICMUTE
LINE IN L
LINE IN R
E2 IN LEFT
E2 IN RIGHT
E1 IN LEFT
E1 IN RIGHT
FEL
FER
CLOCK
STROBE
DATA 7
DATA8
S-VHS-DET
VIDEO IN CCVS/VPS
EE LEVEL
S-VHS CVBS REC/PB
S-VHS Y/C REC
UREF VHS
UREF SVHS
FSE_SVHS
CVBS HF
CH EE for SECAM
BURST GATE
SYNC
AUTO ME
5,85MHz
5,5MHz
6,5MHz
7MHz
3MHz
5MHz
90
93
92
74
73
17
101
96
18
110
85
15


AUDIO (AU)
73
MUTE
RAF
E2 OUT LEFT
E2 OUT RIGHT
E1 OUT LEFT
E1 OUT RIGHT
AUDIO MOD
FE MONO
17
DC
MICRO
3/1518 MICMUTE
Y
OL
LINE IN L
9/1518
E2 IN LEFT
E2 IN RIGHT
FEL
E1 IN LEFT
E1 IN RIGHT
FER
11/1518
LINE IN R
4/1636
3/1636
74 73
7400 TDA9614 FM PART
LOGIC
SDA SCL
TUNER
E1
E3
E2
E3
PB.
REC
20kHz
NOISE REDUCTION
PB.
REC
- LEFT CHANNEL -
- RIGHT CHANNEL -
SDA SCL
AUDIO CLIPPER
FM MOD 1.4MHz
MUTE
LOGIC
SAMPLE AND HOLD
FM DEMOD
LIMITTER
1.4MHz
12
19
20
21
22
18
1
4
10
8
6
2
9
7
3
11
5
14
15
23
24
25
26
56
60
61
57
3408
3410
AUDIO LEVEL L
AUDIO LEVEL R
LINEAR PLAYBACK
PHONES
7/1518
5/1518
DC
MUTE
FRESH
EQU1
EQU2
RBG-REC
WRA2
MICMUTE
4 5 11 6 13 12
7402
SHIFT REGISTER 4
1 STROBE
2 DATA3
3 CLOCK
10 DATA4
FMHT (FMES)
FM TO TAPE (FMAF
12/7400
HI-S
3485
FM F
UNC.FM
SECAM (SE)
23
7575 TDA4722
HF CLOCHE
29
:4
PB
REC
E-E
1.07MHz
21
19
PB
REC
18
16
15
LF-CLOCHE/ ANTICLOCHE
14
GATE
17
3581
SECAM WRITING CURRENT
CHROMA PROCESSING SECAM L
CK
SWEST
3
CK
CK
REC
1
32
31
HF-ANTI CLOCHE
PB
x2
8
10
2.14MHz
RECT
4,3MHz
12 13
84
CVBS VS
37
40
11/1530
10/1530
UREF VHS
UREF SVHS
13/1531
FSE_SVHS
(VS)
SWEST 6
SQ-PB 13
738
SHIF REGIST 5
101
7520
6
16
7810
11
14
1
1
5 14
3
7700
+5VW
NP
VHS
1 2 3
R
PB
S
V
7
2FSC
7725
64μS
7810
9
8
1
6
9
7
8
13
11,12
7520
NP
DO
S
V
YNR DO COMP
EE
19
V-INSERT
SHARP NESS
HOR NOISE CANC.
22
23
43
42
40
FFP
PC_1/2/3
108
DEVIATION
WHITE CLIP
DARK CLIP
+5VF1
SYNC FREQU.
7520
21
20
S
V
FM MOD
25
+5VF1
SYNC FREQ.
VHS
SVHS
FM TO TAPE
6/1530
89
1,1MHz
87
2/1530
627kHz
VHS DET
29
S
26
S
LIM
V
S
V
30
VHS
2FSC
11/1525
PB-FM
1/1530
(SH)
DER BOARD
CHROMINANCE (SF)
FSC/2FSC
NTSC
PLL
SYNC
HI-CH
FSC1
5.06MHz
34
2
30
32
36
1
321fH PLL
ROTARY
VCXO
SUB M
PILOT BURST GEN
13
14
1.6MHz
11
10/1524
4/1524
4/1531
S+5VA
+5VW1
5SW3
4/1530
88
NTSC
7270
M52062
7200
11
+45°
-45°
2 HPLL
14
42
COL.KILL. PILOT BURST ERASE
PAL
SEC
45
47
2
SYNC
9
PB
REC
5
17
4,43MHz
PB
ACC
6
7
M
48
18
15
21
43
NTSC
S/W
S-OST
CVBS TR
3/1524
76
NTSC
NTSC TO QUASI-PAL CONVERTER
ME
CVBS/YC
1/1524
1/1531
56
77
CH EE for SECAM
SVHS
COMPOSITE
EF
+5VW*
HI-CH
CROT
SEC-E
φ 180°
1H/2H CLK
COMB FILTER
FSC/2FSC
11/1524
9/1531
15
FFP 9/1530
15/1525

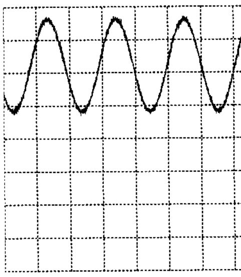

AUDIO LINEAR PART
7400 TDA9614
REC
PB
AUDIO LEVEL L
AUDIO LEVEL R
LINEAR PLAYBACK
WR-A1
2/1637
ERASE OSC.
+12VF
+14VA
EQU1
EQU2
BIAS 3645
4/1503
5/1503
1/1503
3/1503
LINEAR AUDIO ERASE HEAD
AEH
LINEAR AUDIO REC/PB HEAD
AH
DUB
PBEQ
FRESH
EQU1
EQU2
RBG-REC
WRA2
MICMUTE
7402 SHIFT REGISTER 4
STROBE
DATA3
CLOCK
DATA4
80
FULL ERASE HEAD
FEH
WR-A2
MAIN ERASE OSCILLATOR
ONLY FOR SETS WITH DUBBING
1/1504
2/1504
FMHT (FMES)
3/1637
1.4MHz
19
MOTHER BOARD
HEAD AMPLIFIER (HC)
7620 STV5712
FM TO TAPE (FMAR)
12/1637
FMAR
12/7400 RAF
4/1637
RAF
HI-S (HP2)
1/1637
HP2
3485
FM F.T. (FMAP)
14/1637
FMAP
x/1506
UNC.FM
GATE
3581
SECAM WRITING CURRENT
SWEST
20
(VS)
DATA 4
16/1637
SWEST
SQ-PB
7380 SHIFT REGISTER 5
CLOCK
STROBE
DATA 5
ROTATING TRANS-FORMER
HEAD-DISC
FLY-ER
FE-HEAD OSCILLATOR
1/1506
2/1506
7050 TEA5704
IREC
14A
REC
HP1
-REC-
FLIP FLOP
HSC
SYNC
DATA Q
CLOCK
7649
SP/LP
SH1
SHC
SH2
LH2
LHC
LH1
1506
FM TO TAPE
6/1530
1,1MHz
89
87
2/1530
627kHz
NORMAL PLAY
LONG PLAY
FMRV
FM TO TAPE
(VS)
1/1530
FM CON(TROLLED)
-PB-
AGC
(SH)
S+5VA
5SW3
10/1524
4/1524
4/1531
AUTOSEC
39
FM-UNC(ONTROLLED)
4/1530
88
FFP 9/1530
TRIV
FMEP
15/1525
SEC-E
COMB FILTER
180°
1H/2H
CLK
FSC/2FSC
CROT
11/1524
9/1531
ENVC
ENVELOPE COMPARATOR
PG_PLANA HG_0696
SDA
IIC BUS
SCL



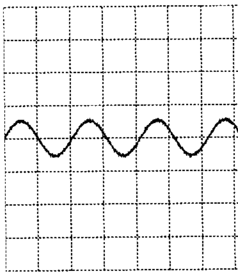
A: DC, 1 V/Div, 500us/Div
IC 7100 Pin 11/12



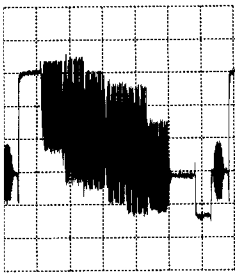
A: DC, 500mV/Div, 20us/Div
Connector 1624 Pin 5



A: DC, 500mV/Div, 500us/D
Connector 1625 Pin 9



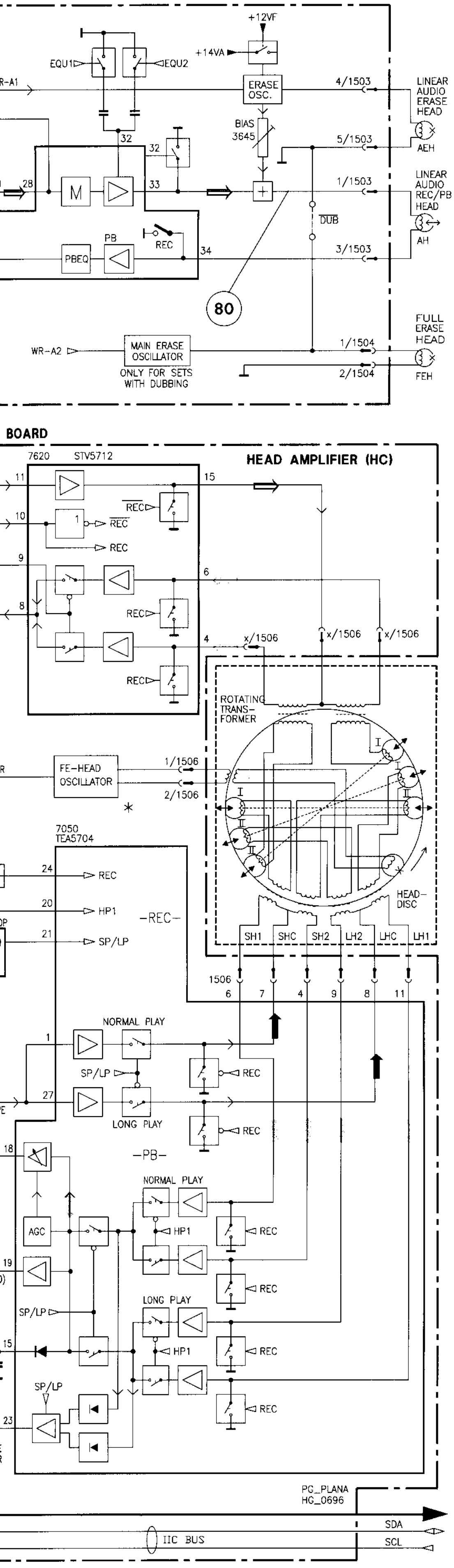
A: DC, 1 V/Div, 500us/Div
Connector 1637 Pin 5

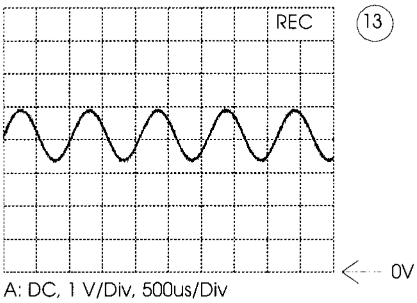


A: DC, 500mV/Div, 10us/D
Connector 1638 Pin 7

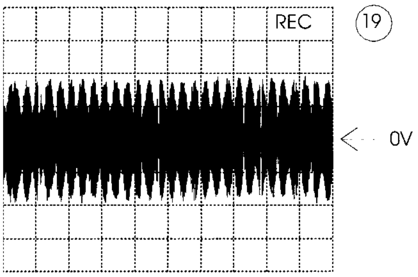
Interconnections:

PS page 3-27	SE page 3-
FE page 3-29/31	HC page 3-
TM page 3-34	VS page 3-

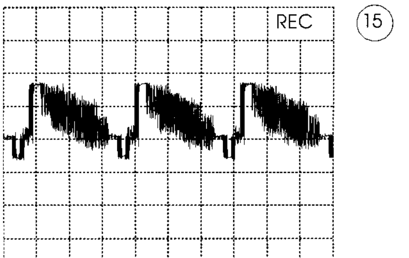

+12VF
EQU1
EQU2
+14VA
R-A1
ERASE OSC.
4/1503
LINEAR AUDIO ERASE HEAD
BIAS 3645
32
5/1503
AEH
28
M
33
1/1503
LINEAR AUDIO REC/PB HEAD
DUB
AH
PB
REC
PBEQ
34
3/1503
80
FULL ERASE HEAD
WR-A2
MAIN ERASE OSCILLATOR
ONLY FOR SETS WITH DUBBING
1/1504
2/1504
FEH
BOARD
7620 STV5712
HEAD AMPLIFIER (HC)
11
15
10
REC
9
6
8
4
x/1506
ROTATING TRANS-FORMER
FE-HEAD OSCILLATOR
1/1506
2/1506
*
7050 TEA5704
24
20
HP1
-REC-
21
SP/LP
HEAD-DISC
SH1 SHC SH2 LH2 LHC LH1
1506
6 7 4 9 8 11
NORMAL PLAY
27
LONG PLAY
-PB-
18
AGC
19
15
23
PC_PLANA HG_0696
SDA
SCL
IIC BUS



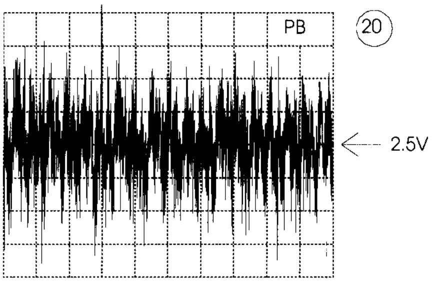
A: DC, 1 V/Div, 500us/Div
IC 7100 Pin 11/12



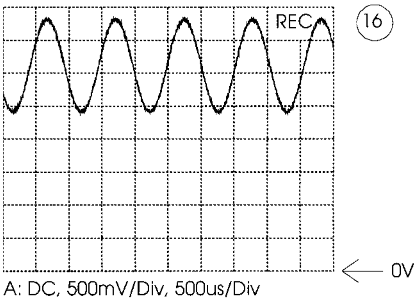
A: DC, 100mV/Div, 1ms/Div
Connector 1637 Pin 12



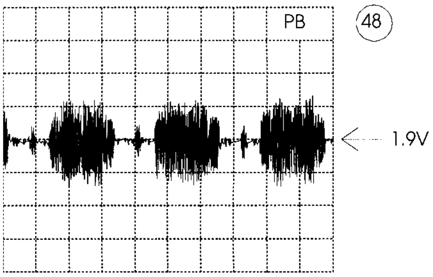
A: DC, 500mV/Div, 20us/Div
Connector 1624 Pin 5



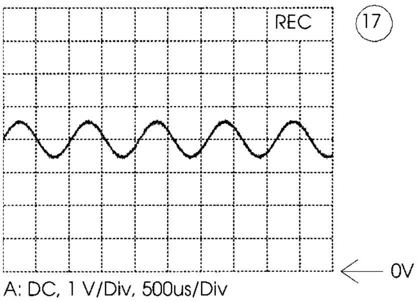
A: AC, 200mV/Div, 1ms/Div
Connector 1637 Pin 14



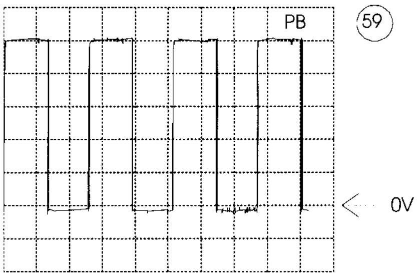
A: DC, 500mV/Div, 500us/Div
Connector 1625 Pin 9



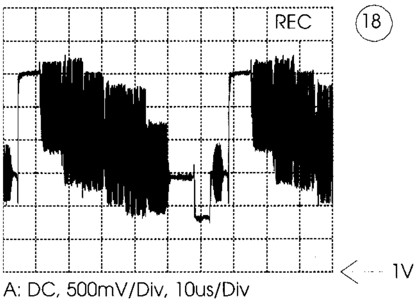
A: AC, 200mV/Div, 20us/Div
IC 7320 Pin 23



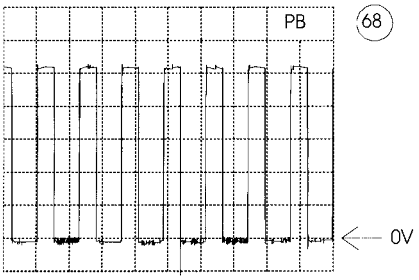
A: DC, 1 V/Div, 500us/Div
Connector 1637 Pin 5



A: DC, 1 V/Div, 10us/Div
IC 7085 Pin 25



A: DC, 500mV/Div, 10us/Div
Connector 1638 Pin 7

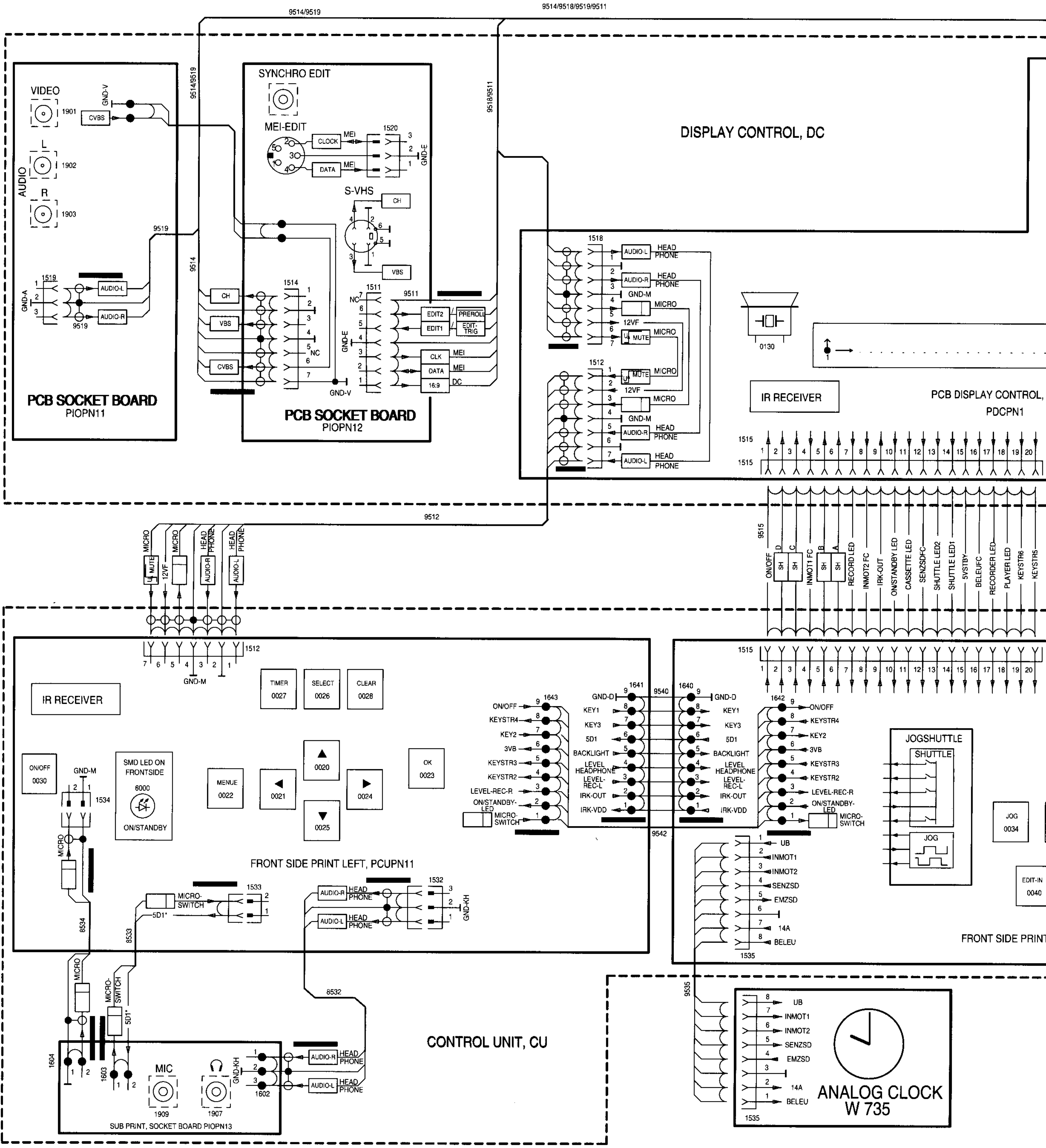


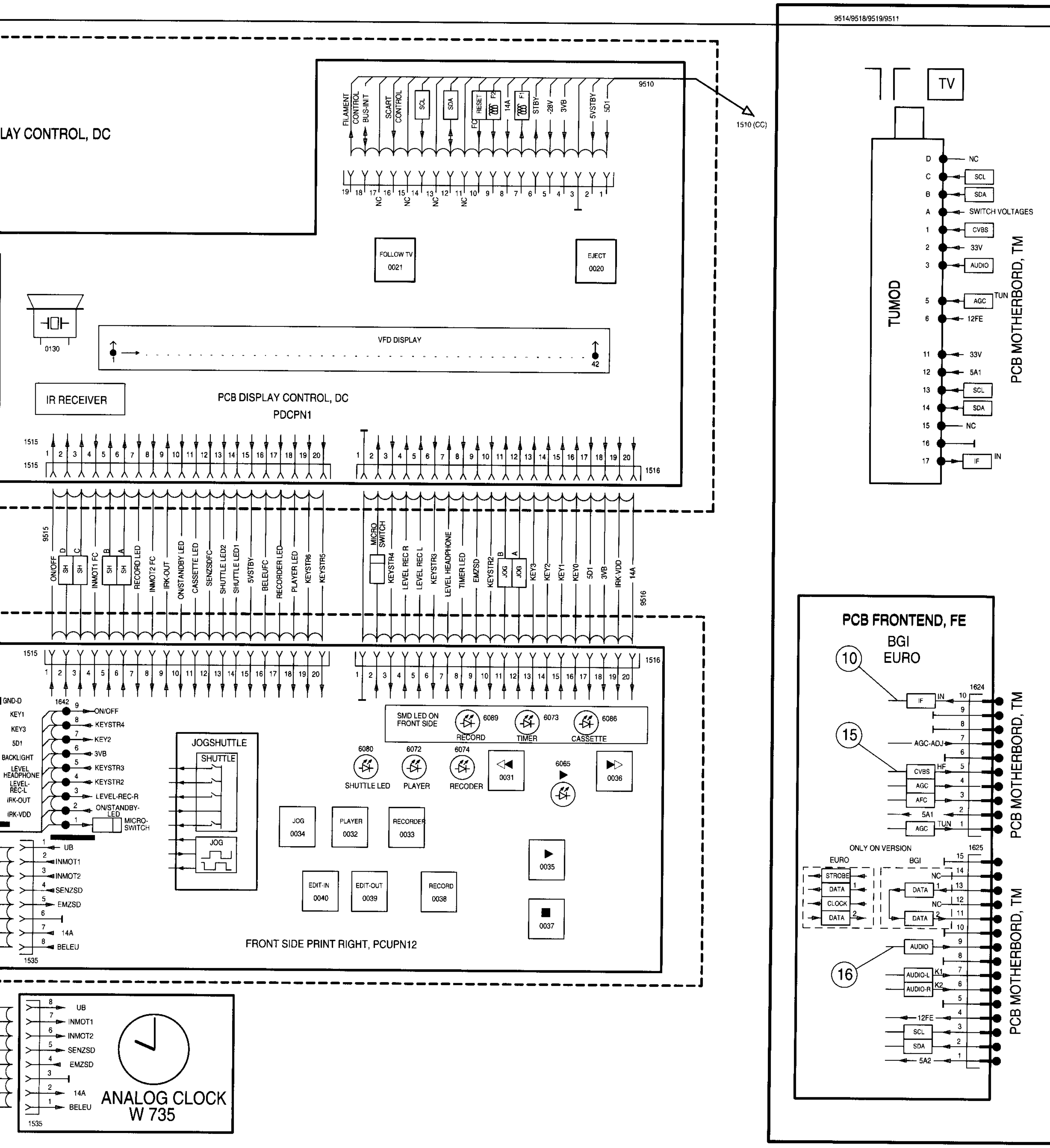
A: DC, 1 V/Div, 20us/Div
IC 7085 Pin 24

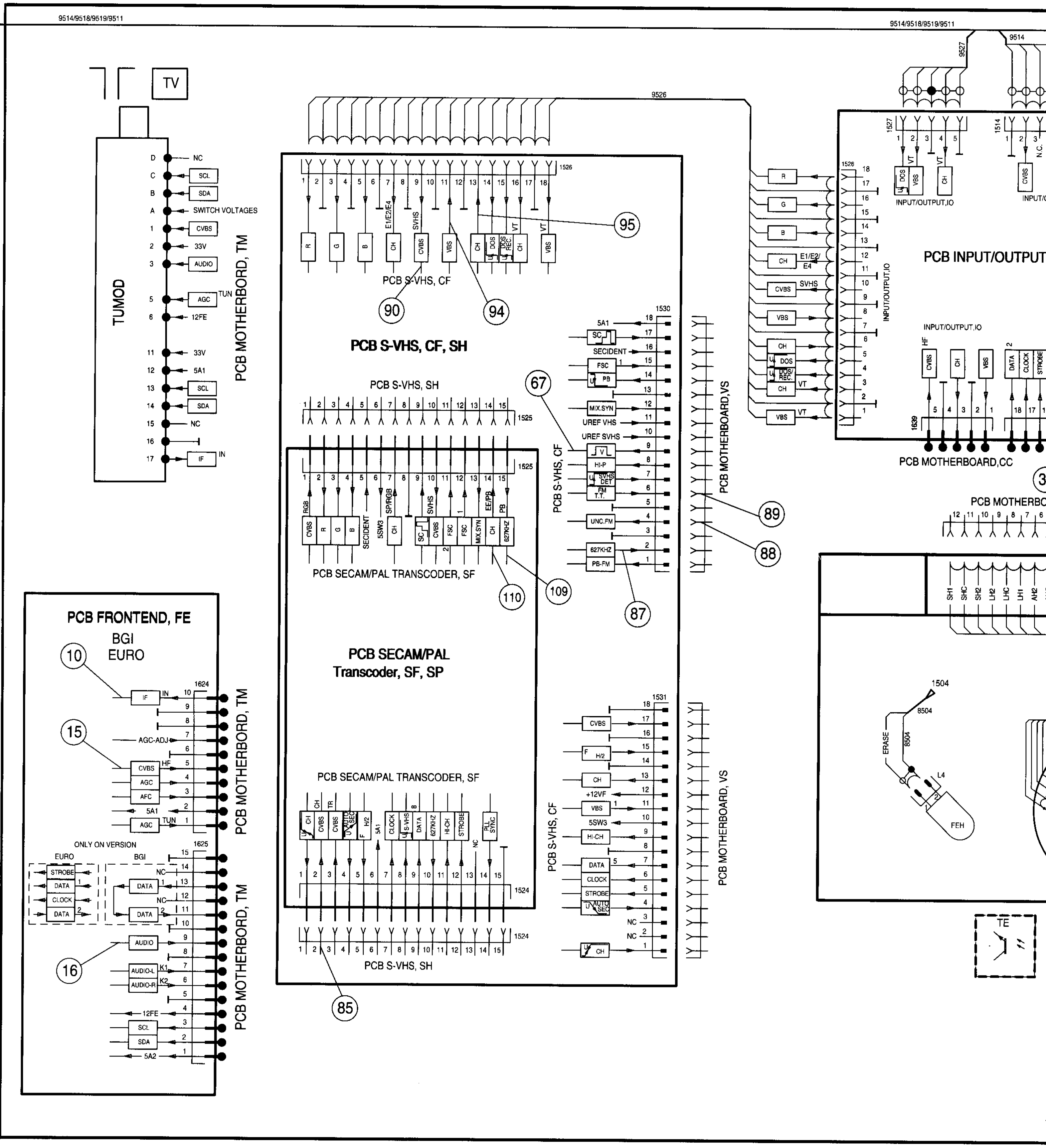
Interconnections:

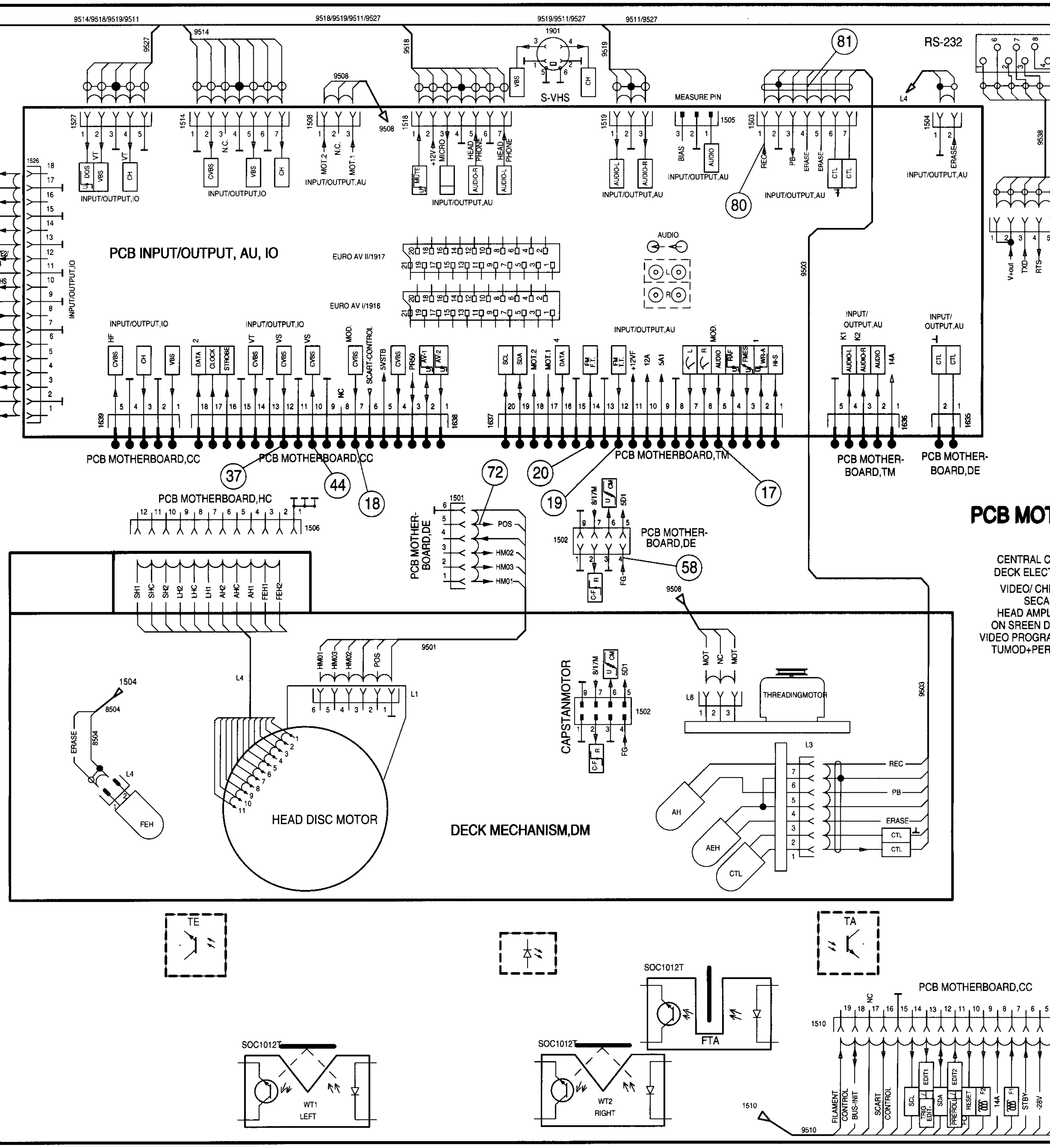
PS page 3-27	SE page 3-35	DE page 3-38	VP page 3-41	VT page 3-46	SF page 3-53
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP page 3-54
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC page 3-57...

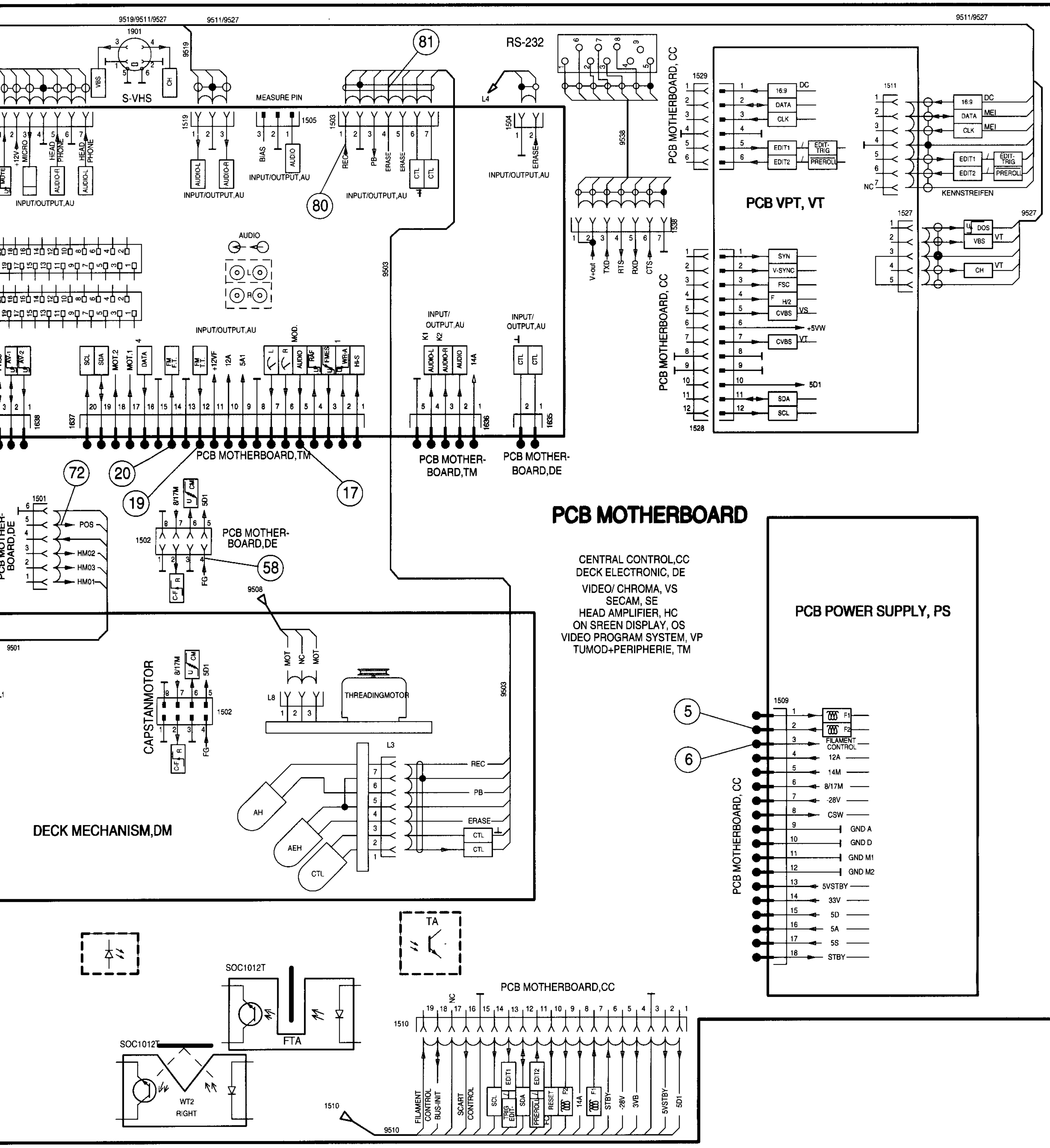
Wiring Diagram VR969


9514/9519
9514/9518/9519/9511
VIDEO
1901
CVBS
GND-V
AUDIO
L
1902
R
1903
9519
1519
GND-A
AUDIO-L
AUDIO-R
PCB SOCKET BOARD
PIOPN11
9514/9519
9514
CH
VBS
CVBS
1514
NC
SYNCHRO EDIT
MEI-EDIT
CLOCK
DATA
MEI
1520
GND-E
S-VHS
1511
9511
EDIT2
EDIT1
PREROLL
EDIT-TRIG
CLK
DATA
16:9
DC
GND-V
PCB SOCKET BOARD
PIOPN12
9518/9511
DISPLAY CONTROL, DC
1518
AUDIO-L
HEAD PHONE
AUDIO-R
GND-M
MICRO
12VF
MUTE
1512
0130
IR RECEIVER
PCB DISPLAY CONTROL,
PDCPN1
1515
9512
9515
ON/OFF
SH
INMOT1 FC
RECORD LED
INMOT2 FC
IRK-OUT
ON/STANDBY LED
CASSETTE LED
SENZSDFC
SHUTTLE LED2
SHUTTLE LED1
5VSTBY
BELEUFC
RECORDER LED
PLAYER LED
KEYSTR6
KEYSTR5
IR RECEIVER
TIMER 0027
SELECT 0026
CLEAR 0028
ON/OFF 0030
GND-M
1534
SMD LED ON FRONTSIDE
6000
ON/STANDBY
MENUE 0022
0021
0020
0025
0024
OK 0023
1643
KEYSTR4
KEY2
3VB
KEYSTR3
KEYSTR2
LEVEL-REC-R
ON/STANDBY-LED
MICRO-SWITCH
1641
9540
1640
GND-D
KEY1
KEY3
5D1
BACKLIGHT
LEVEL HEADPHONE
LEVEL-REC-L
IRK-OUT
IRK-VDD
9542
1642
FRONT SIDE PRINT LEFT, PCUPN11
1533
MICRO-SWITCH
5D1*
1532
GND-KH
8534
8533
8532
JOGSHUTTLE
SHUTTLE
JOG
JOG 0034
EDIT-IN 0040
1535
UB
INMOT1
INMOT2
SENZSD
EMZSD
14A
BELEU
FRONT SIDE PRINT
CONTROL UNIT, CU
1604
1603
MIC
1909
1907
1602
SUB PRINT, SOCKET BOARD PIOPN13
9535
ANALOG CLOCK
W 735


LAY CONTROL, DC
9510
1510 (CC)
FILAMENT CONTROL
BUS-INIT
SCART CONTROL
SCL
SDA
RESET
F2
FC
14A
F1
STBY
-28V
3VB
5VSTBY
5D1
NC
FOLLOW TV 0021
EJECT 0020
0130
VFD DISPLAY
1
42
IR RECEIVER
PCB DISPLAY CONTROL, DC
PDCPN1
1515
1516
9515
9516
ON/OFF
SH
INMOT1 FC
RECORD LED
INMOT2 FC
IRK-OUT
ON/STANDBY LED
CASSETTE LED
SENZSDFC
SHUTTLE LED2
SHUTTLE LED1
5VSTBY
BELEUFC
RECORDER LED
PLAYER LED
KEYSTR6
KEYSTR5
MICRO SWITCH
KEYSTR4
LEVEL REC R
LEVEL REC L
KEYSTR3
LEVEL HEADPHONE
TIMER LED
EMZSD
KEYSTR2
JOG
KEY3
KEY2
KEY1
KEY0
5D1
3VB
IRK-VDD
14A
GND-D
KEY1
KEY3
5D1
BACKLIGHT
LEVEL HEADPHONE
LEVEL-REC-L
IRK-OUT
IRK-VDD
1642
ON/OFF
KEYSTR4
KEY2
3VB
KEYSTR3
KEYSTR2
LEVEL-REC-R
ON/STANDBY-LED
MICRO-SWITCH
JOGSHUTTLE
SHUTTLE
JOG
SMD LED ON FRONT SIDE
6089 RECORD
6073 TIMER
6086 CASSETTE
6080 SHUTTLE LED
6072 PLAYER
6074 RECODER
0031
6065
0036
JOG 0034
PLAYER 0032
RECORDER 0033
0035
EDIT-IN 0040
EDIT-OUT 0039
RECORD 0038
0037
UB
INMOT1
INMOT2
SENZSD
EMZSD
14A
BELEU
1535
FRONT SIDE PRINT RIGHT, PCUPN12
ANALOG CLOCK
W 735
9514/9518/9519/9511
TV
TUMOD
NC
SCL
SDA
SWITCH VOLTAGES
CVBS
33V
AUDIO
AGC
TUN
12FE
5A1
IF
IN
PCB MOTHERBORD, TM
PCB FRONTEND, FE
BGI
EURO
10
15
16
1624
AGC-ADJ
HF
AFC
TUN
1625
ONLY ON VERSION
STROBE
DATA
CLOCK
AUDIO-L
AUDIO-R
K1
K2
5A2

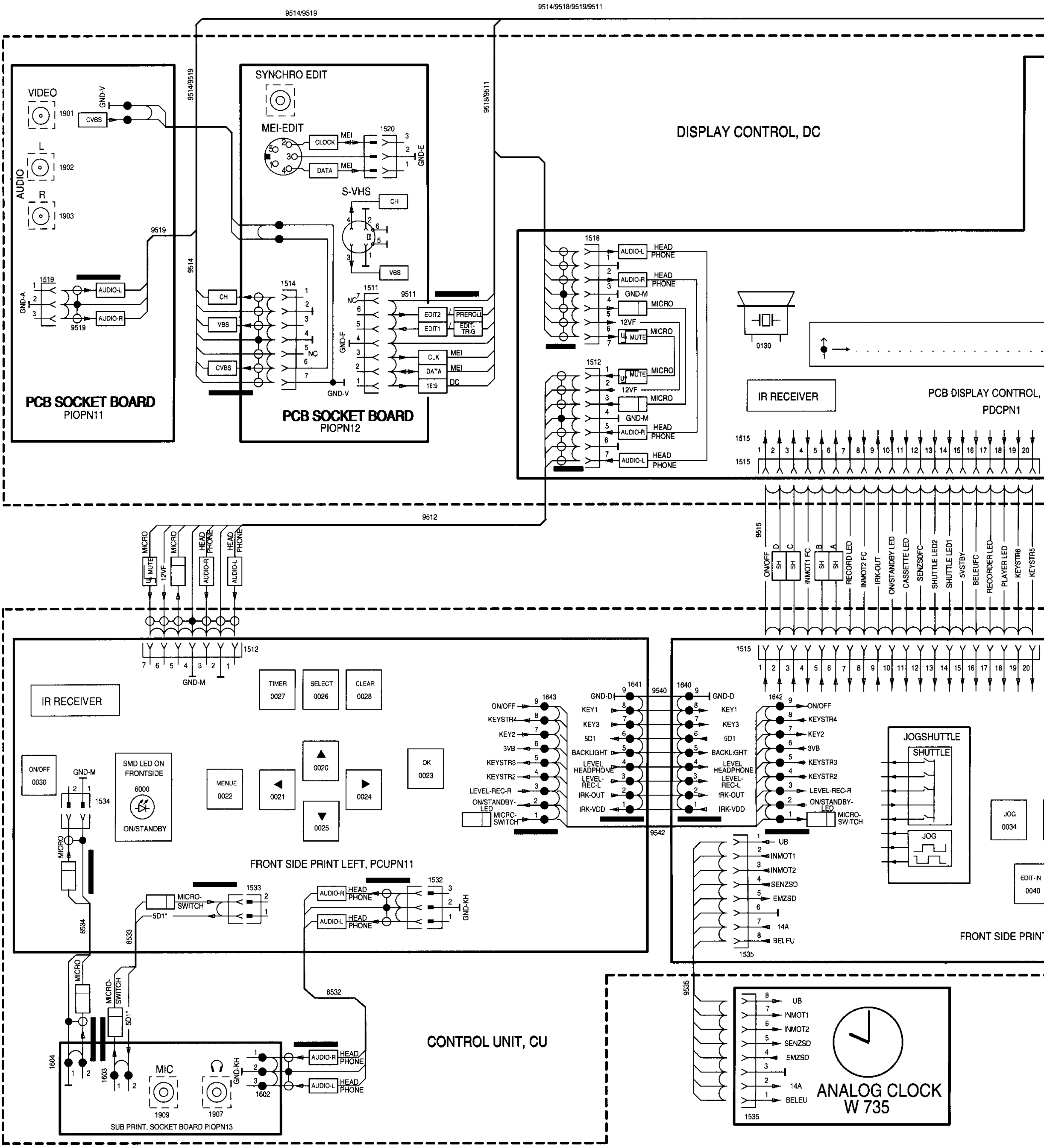

TV
TUMOD
PCB MOTHERBORD, TM
D NC
C SCL
B SDA
A SWITCH VOLTAGES
1 CVBS
2 33V
3 AUDIO
5 AGC TUN
6 12FE
11 33V
12 5A1
13 SCL
14 SDA
15 NC
16
17 IF IN
9526
1526
PCB S-VHS, CF
R
G
B
CH
E1/E2/E4
SVHS
CVBS
VBS
DOS
DOS REC
VT
95
90
94
PCB S-VHS, CF, SH
PCB S-VHS, SH
1525
PCB SECAM/PAL TRANSCODER, SF
RGB
SECIDENT
5SW3
SP/RGB
SC
FSC
MIX.SYN
EE/PB
PB
627KHZ
110
109
PCB SECAM/PAL Transcoder, SF, SP
1530
5A1
SECIDENT
FSC
PB
MIX.SYN
UREF VHS
UREF SVHS
HI-P
SVHS DET
FM T.T.
UNC.FM
627KHZ
PB-FM
67
PCB S-VHS, CF
PCB MOTHERBOARD,VS
89
88
87
PCB FRONTEND, FE
BGI
EURO
10
15
16
1624
IF IN
AGC-ADJ
CVBS HF
AGC
AFC
5A1
AGC TUN
PCB MOTHERBORD, TM
ONLY ON VERSION
EURO
BGI
1625
STROBE
DATA
CLOCK
DATA
NC
AUDIO
AUDIO-L K1
AUDIO-R K2
12FE
SCL
SDA
5A2
PCB SECAM/PAL TRANSCODER, SF
CH
TR
CVBS
AUTO SEC
H/2
5A1
CLOCK
S-VHS
DATA
627KHZ
HI-CH
STROBE
NC
PLL SYNC
1524
PCB S-VHS, SH
85
1531
CVBS
F H/2
CH
+12VF
VBS
5SW3
HI-CH
DATA
CLOCK
STROBE
AUTO SEC
NC
CH
PCB S-VHS, CF
PCB MOTHERBOARD, VS
9514/9518/9519/9511
9527
9514
1527
1514
N.C.
INPUT/OUTPUT,IO
PCB INPUT/OUTPUT
E1/E2/E4
SVHS
DOS/REC.
VT
HF
CVBS
CH
VBS
DATA
CLOCK
STROBE
1639
PCB MOTHERBOARD,CC
PCB MOTHERBO
SH1
SHC
SH2
LH2
LHC
LH1
AH2
1504
8504
ERASE
L4
FEH
TE


9514/9518/9519/9511
9518/9519/9511/9527
9519/9511/9527
9511/9527
9527
9514
9508
9518
1901
S-VHS
9519
81
RS-232
MEASURE PIN
1527
VT DOS
VBS
CH
INPUT/OUTPUT,IO
1514
N.C.
CVBS
VBS
CH
INPUT/OUTPUT,IO
1508
MOT.2
N.C.
MOT.1
INPUT/OUTPUT,AU
1518
+12V
MICRO
HEAD PHONE
MUTE
AUDIO-R
AUDIO-L
INPUT/OUTPUT,AU
AUDIO-L
AUDIO-R
INPUT/OUTPUT,AU
1505
BIAS
AUDIO
INPUT/OUTPUT,AU
1503
REC
PB
ERASE
CTL
INPUT/OUTPUT,AU
80
1504
ERASE
INPUT/OUTPUT,AU
9538
1526
INPUT/OUTPUT,IO
PCB INPUT/OUTPUT, AU, IO
EURO AV II/1917
EURO AV I/1916
AUDIO
9503
INPUT/OUTPUT,IO
INPUT/OUTPUT,IO
HF
CVBS
CH
VBS
DATA
CLOCK
STROBE
VT
VS
CVBS
MOD.
SCART-CONTROL
5VSTB
PR50
AV-1
AV-2
NC
1639
1638
PCB MOTHERBOARD,CC
PCB MOTHERBOARD,CC
37
44
18
INPUT/OUTPUT,AU
SCL
SDA
MOT.2
MOT.1
DATA
FM F.T.
FM T.T.
+12VF
12A
5A1
MOD.
AUDIO
RAF
FMES
WR-A
HI-S
1637
PCB MOTHERBOARD,TM
20
19
17
INPUT/ OUTPUT,AU
K1
K2
AUDIO-L
AUDIO-R
AUDIO
14A
1636
PCB MOTHER-BOARD,TM
INPUT/ OUTPUT,AU
CTL
1635
PCB MOTHER-BOARD,DE
V+out
TXD
RTS
PCB MOTHERBOARD,HC
1506
72
1501
PCB MOTHER-BOARD,DE
POS
HM02
HM03
HM01
8/17M
5D1
1502
PCB MOTHER-BOARD,DE
C-F
R
FG
58
9508
PCB MOT
CENTRAL C
DECK ELECT
VIDEO/ CHI
SECA
HEAD AMPL
ON SREEN D
VIDEO PROGRA
TUMOD+PER
SH1
SHC
SH2
LH2
LHC
LH1
AH2
AHC
AH1
FEH1
FEH2
L4
9501
HM01
HM03
HM02
POS
L1
1504
8504
ERASE
FEH
HEAD DISC MOTOR
CAPSTANMOTOR
8/17M
5D1
1502
C-F
R
FG
MOT
NC
MOT
L8
THREADINGMOTOR
9503
L3
REC
PB
ERASE
CTL
CTL
AH
AEH
CTL
DECK MECHANISM,DM
TE
TA
SOC1012T
FTA
SOC1012T
WT1
LEFT
SOC1012T
WT2
RIGHT
PCB MOTHERBOARD,CC
NC
1510
1510
9510
FILAMENT CONTROL
BUS-INIT
SCART CONTROL
SCL
TRIG EDIT
EDIT1
SDA
PREROLL
EDIT2
RESET
F2
14A
F1
STBY
-28V

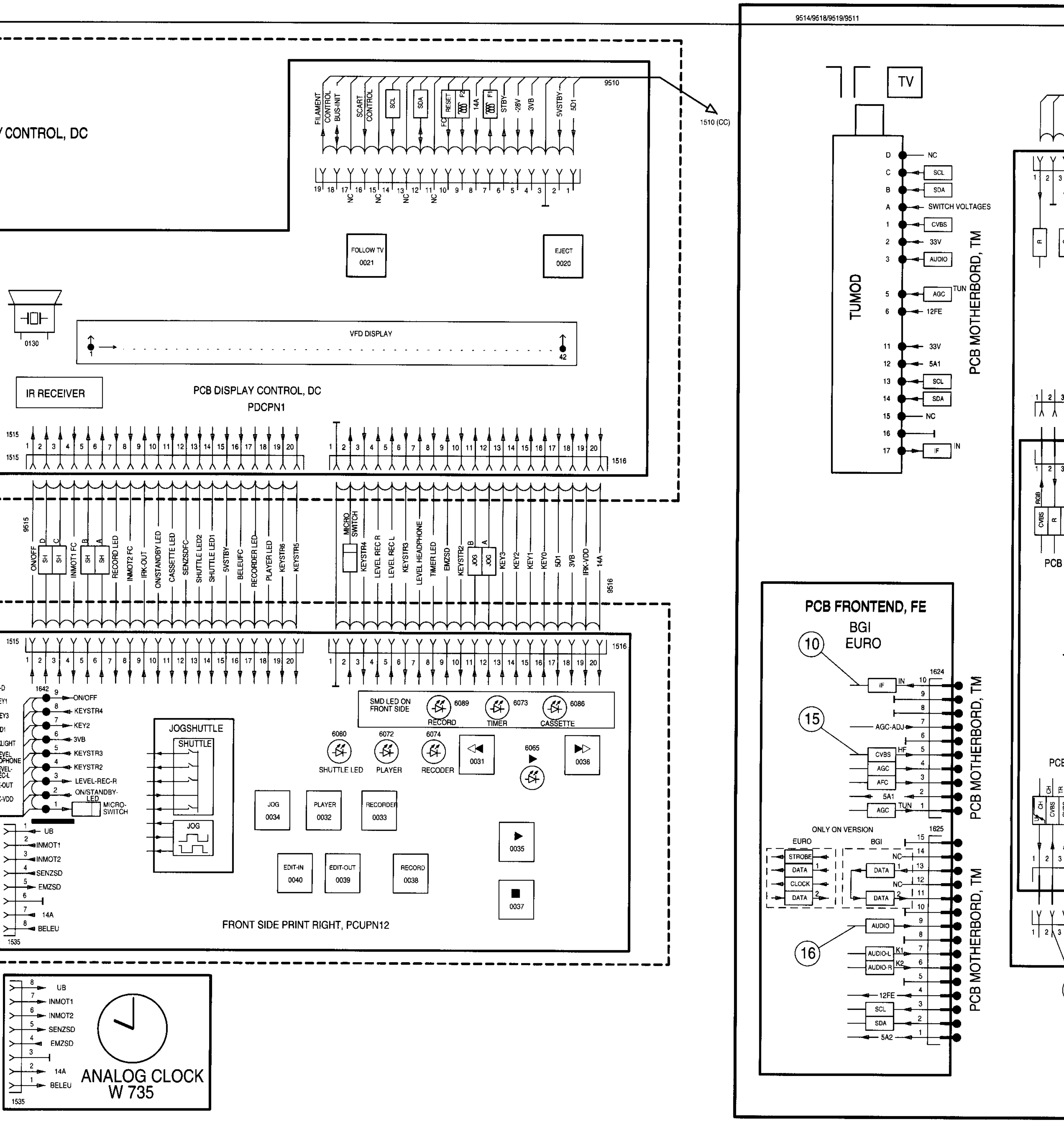


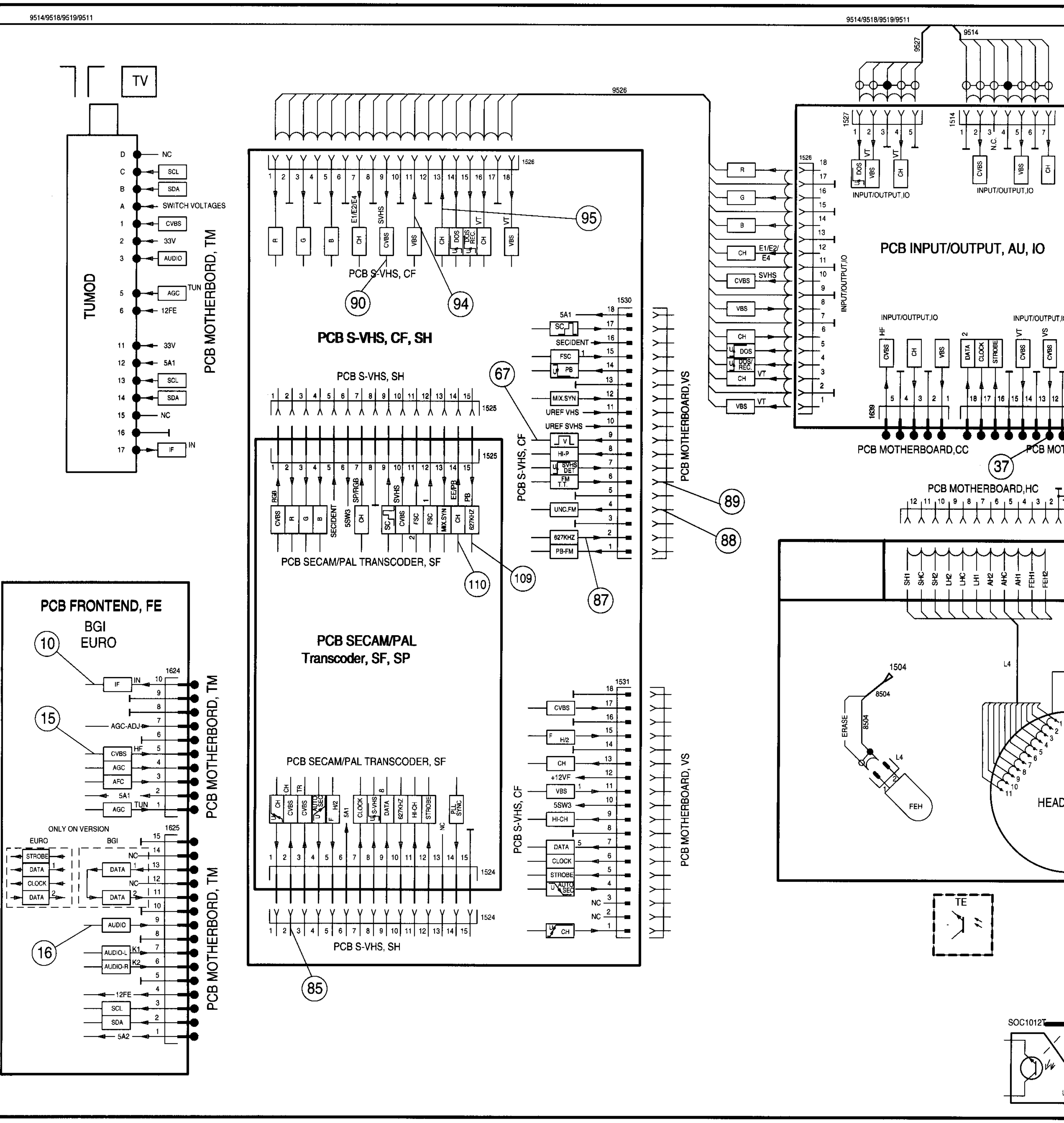
PCB MOTHERBOARD
CENTRAL CONTROL,CC
DECK ELECTRONIC, DE
VIDEO/ CHROMA, VS
SECAM, SE
HEAD AMPLIFIER, HC
ON SREEN DISPLAY, OS
VIDEO PROGRAM SYSTEM, VP
TUMOD+PERIPHERIE, TM
PCB POWER SUPPLY, PS
PCB VPT, VT
PCB MOTHERBOARD, CC
PCB MOTHERBOARD,TM
PCB MOTHER-BOARD,TM
PCB MOTHER-BOARD,DE
DECK MECHANISM,DM
CAPSTANMOTOR
THREADINGMOTOR
S-VHS
RS-232
MEASURE PIN
AUDIO
INPUT/OUTPUT,AU
KENNSTREIFEN
FILAMENT CONTROL
12A
14M
8/17M
-28V
CSW
GND A
GND D
GND M1
GND M2
5VSTBY
33V
5D
5A
5S
STBY
SYN
V-SYNC
FSC
H/2
CVBS
+5VW
5D1
SDA
SCL
16:9
DATA
CLK
EDIT1
EDIT2
EDIT-TRIG
PREROLL
DOS
VBS
CH
V+out
TXD
RTS
RXD
CTS
REC
PB
ERASE
CTL
AH
AEH
POS
HM02
HM03
HM01
C-F
FG
MOT
NC
BIAS
AUDIO-L
AUDIO-R
HEAD PHONE
MICRO
+12V
MOT.2
MOT.1
FM F.T.
FM T.T.
+12VF
5A1
MOD.
RAF
FMES
WR-A
HI-S
TA
FTA
SOC1012T
WT2 RIGHT
SCART CONTROL
BUS-INIT
RESET
3VB
1901
1501
1502
1503
1504
1505
1509
1510
1511
1519
1527
1528
1529
1538
1635
1636
1637
1638
9501
9503
9508
9510
9511/9527
9519/9511/9527
9519
9527
9538
L3
L4
L8
5
6
17
19
20
58
72
80
81

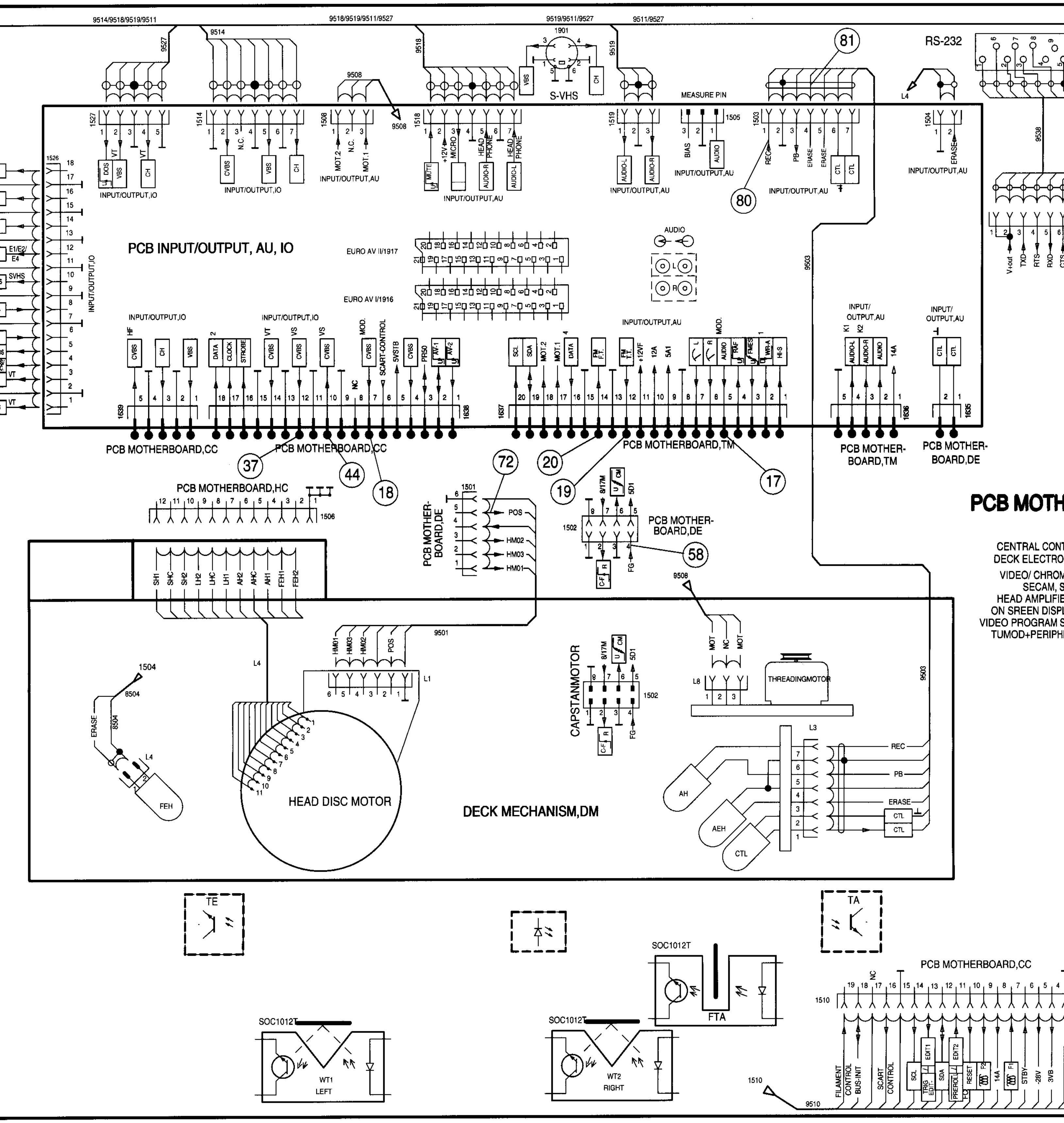
Wiring Diagram VR969

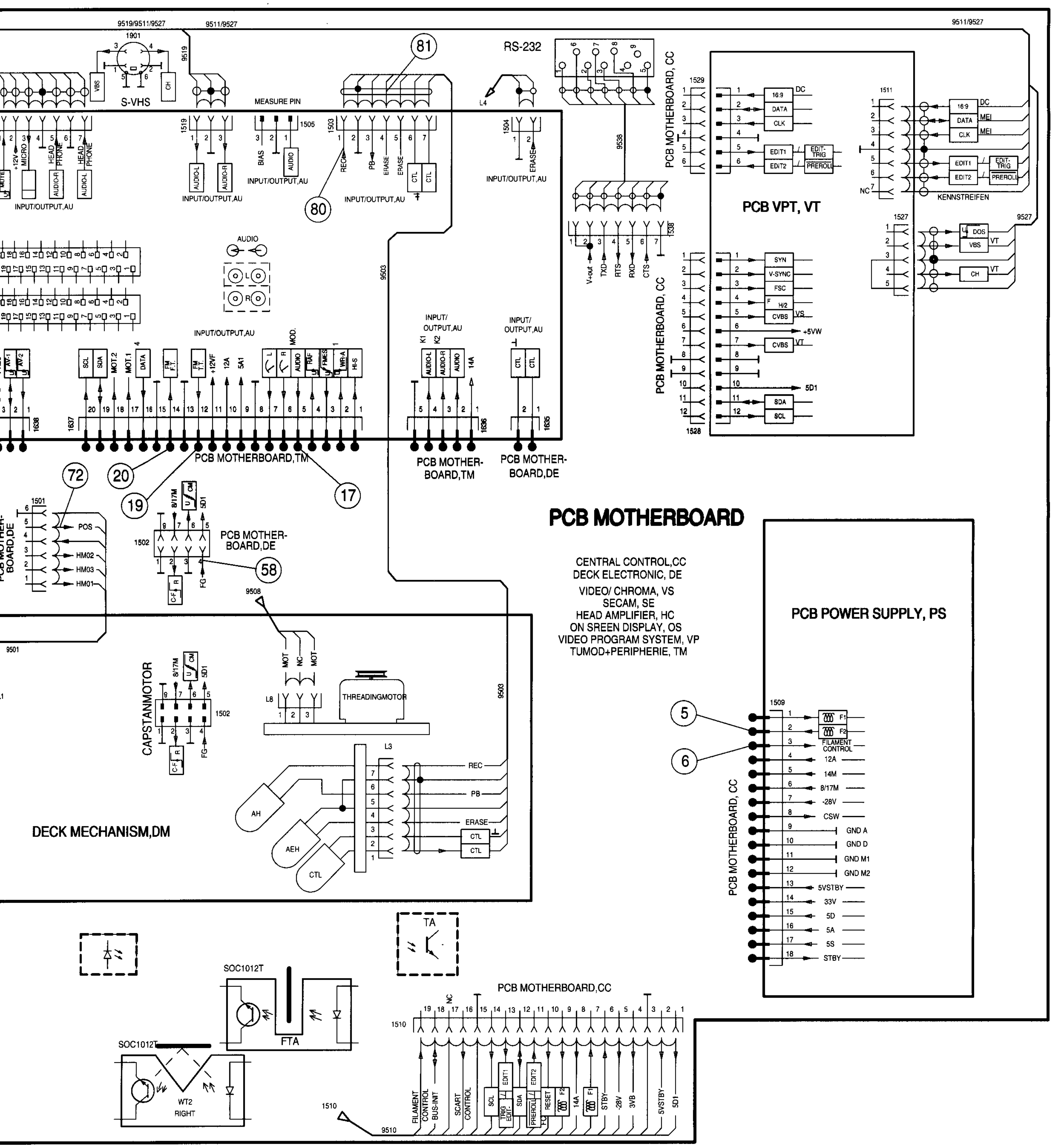


9514/9519
9514/9518/9519/9511
VIDEO
AUDIO
L
R
1901
1902
1903
GND-V
CVBS
9519
1519
GND-A
AUDIO-L
AUDIO-R
PCB SOCKET BOARD
PIOPN11
9514/9519
9514
SYNCHRO EDIT
MEI-EDIT
CLOCK
DATA
MEI
1520
GND-E
S-VHS
CH
VBS
1514
NC
GND-V
1511
9511
EDIT2
EDIT1
PREROLL
EDIT-TRIG
CLK
DATA
16:9
DC
PCB SOCKET BOARD
PIOPN12
9518/9511
DISPLAY CONTROL, DC
1518
HEAD PHONE
GND-M
MICRO
12VF
MUTE
1512
0130
IR RECEIVER
PCB DISPLAY CONTROL,
PDCPN1
1515
9512
9515
ON/OFF
SH
INMOT1 FC
INMOT2 FC
RECORD LED
IRK-OUT
ON/STANDBY LED
CASSETTE LED
SENZSDFC
SHUTTLE LED2
SHUTTLE LED1
5VSTBY
BELEUFC
RECORDER LED
PLAYER LED
KEYSTR6
KEYSTR5
1512
GND-M
IR RECEIVER
TIMER 0027
SELECT 0026
CLEAR 0028
ON/OFF 0030
GND-M
1534
SMD LED ON FRONTSIDE
6000
ON/STANDBY
MENUE 0022
0021
0020
0024
0025
OK 0023
1643
1641
9540
1640
1642
ON/OFF
KEYSTR4
KEY2
3VB
KEYSTR3
KEYSTR2
LEVEL-REC-R
ON/STANDBY-LED
MICRO-SWITCH
GND-D
KEY1
KEY3
5D1
BACKLIGHT
LEVEL HEADPHONE
LEVEL-REC-L
IRK-OUT
IRK-VDD
9542
JOGSHUTTLE
SHUTTLE
JOG
JOG 0034
EDIT-IN 0040
UB
INMOT1
INMOT2
SENZSD
EMZSD
14A
BELEU
1535
FRONT SIDE PRINT
FRONT SIDE PRINT LEFT, PCUPN11
MICRO
1533
MICRO-SWITCH
5D1*
1532
GND-KH
8534
8533
8532
9535
CONTROL UNIT, CU
1604
1603
MIC
1909
1907
1602
SUB PRINT, SOCKET BOARD PIOPN13
ANALOG CLOCK
W 735

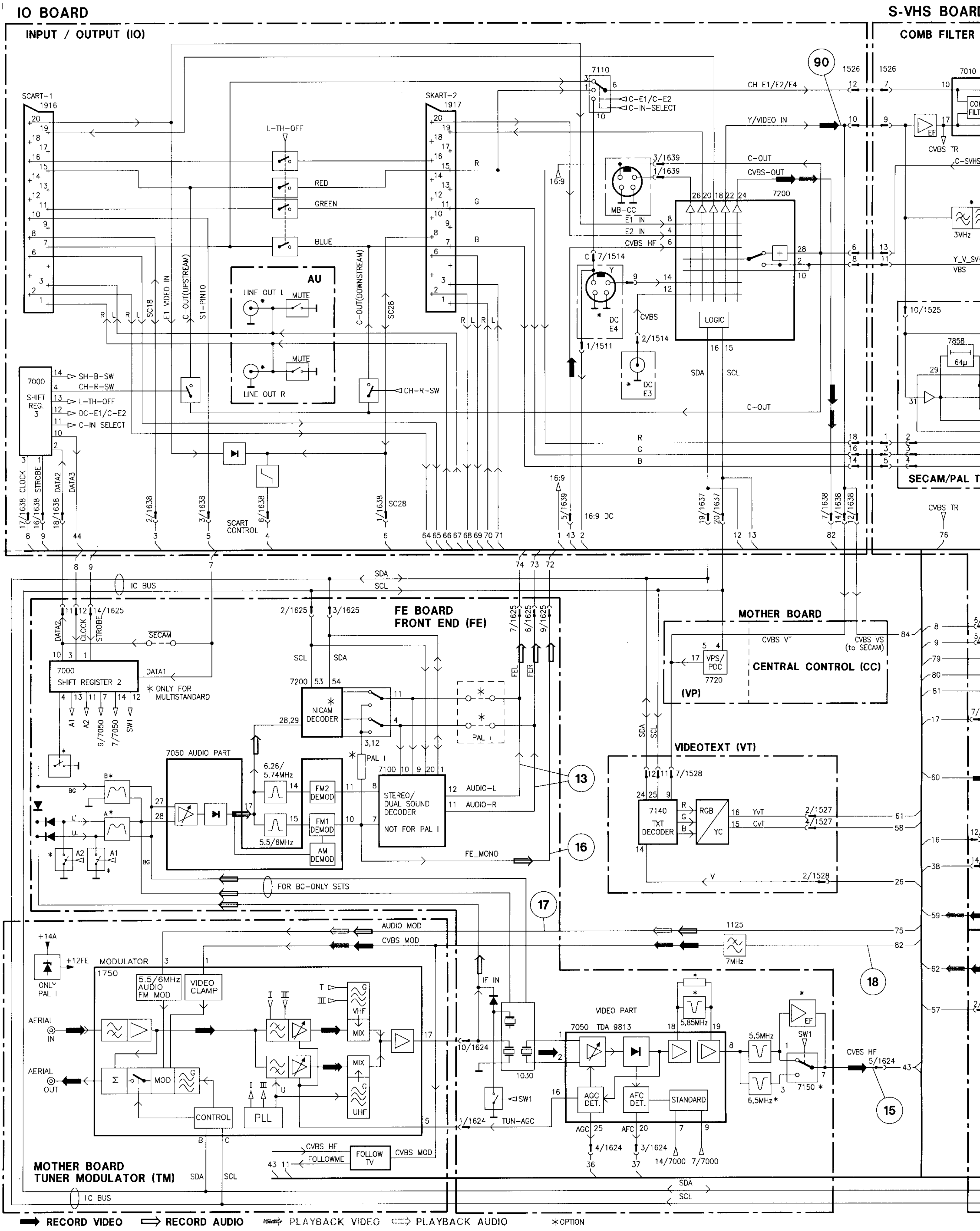

9514/9518/9519/9511
CONTROL, DC
FILAMENT CONTROL
BUS-INIT
SCART CONTROL
SCL
SDA
FC
RESET
F2
14A
F1
STBY
-28V
3VB
5VSTBY
5D1
9510
1510 (CC)
NC
FOLLOW TV 0021
EJECT 0020
0130
VFD DISPLAY
1
42
IR RECEIVER
PCB DISPLAY CONTROL, DC
PDCPN1
1515
1516
9515
9516
ON/OFF
SH
D
C
B
A
INMOT1 FC
INMOT2 FC
RECORD LED
IRK-OUT
ON/STANDBY LED
CASSETTE LED
SENZSDFC
SHUTTLE LED2
SHUTTLE LED1
5VSTBY
BELEUFC
RECORDER LED
PLAYER LED
KEYSTR6
KEYSTR5
MICRO SWITCH
KEYSTR4
LEVEL REC R
LEVEL REC L
KEYSTR3
LEVEL HEADPHONE
TIMER LED
EMZSD
KEYSTR2
JOG
KEY3
KEY2
KEY1
KEY0
5D1
3VB
IRK-VDD
14A
1642
ON/OFF
KEYSTR4
KEY2
3VB
KEYSTR3
KEYSTR2
LEVEL-REC-R
ON/STANDBY-LED
MICRO-SWITCH
UB
INMOT1
INMOT2
SENZSD
EMZSD
14A
BELEU
1535
JOGSHUTTLE
SHUTTLE
JOG
SMD LED ON FRONT SIDE
6089 RECORD
6073 TIMER
6086 CASSETTE
6080 SHUTTLE LED
6072 PLAYER
6074 RECODER
0031
6065
0036
JOG 0034
PLAYER 0032
RECORDER 0033
0035
EDIT-IN 0040
EDIT-OUT 0039
RECORD 0038
0037
FRONT SIDE PRINT RIGHT, PCUPN12
ANALOG CLOCK
W 735
TV
TUMOD
NC
SCL
SDA
SWITCH VOLTAGES
CVBS
33V
AUDIO
AGC
TUN
12FE
33V
5A1
SCL
SDA
NC
IF
IN
PCB MOTHERBORD, TM
PCB FRONTEND, FE
BGI
EURO
⑩
⑮
⑯
1624
IF
IN
AGC-ADJ
CVBS
HF
AGC
AFC
5A1
AGC
TUN
ONLY ON VERSION
1625
EURO
BGI
STROBE
DATA
CLOCK
DATA
NC
AUDIO
AUDIO-L K1
AUDIO-R K2
12FE
SCL
SDA
5A2
PCB MOTHERBORD, TM
PCB MOTHERBORD, TM
PCB
RGB
CVBS
R
CH
TR

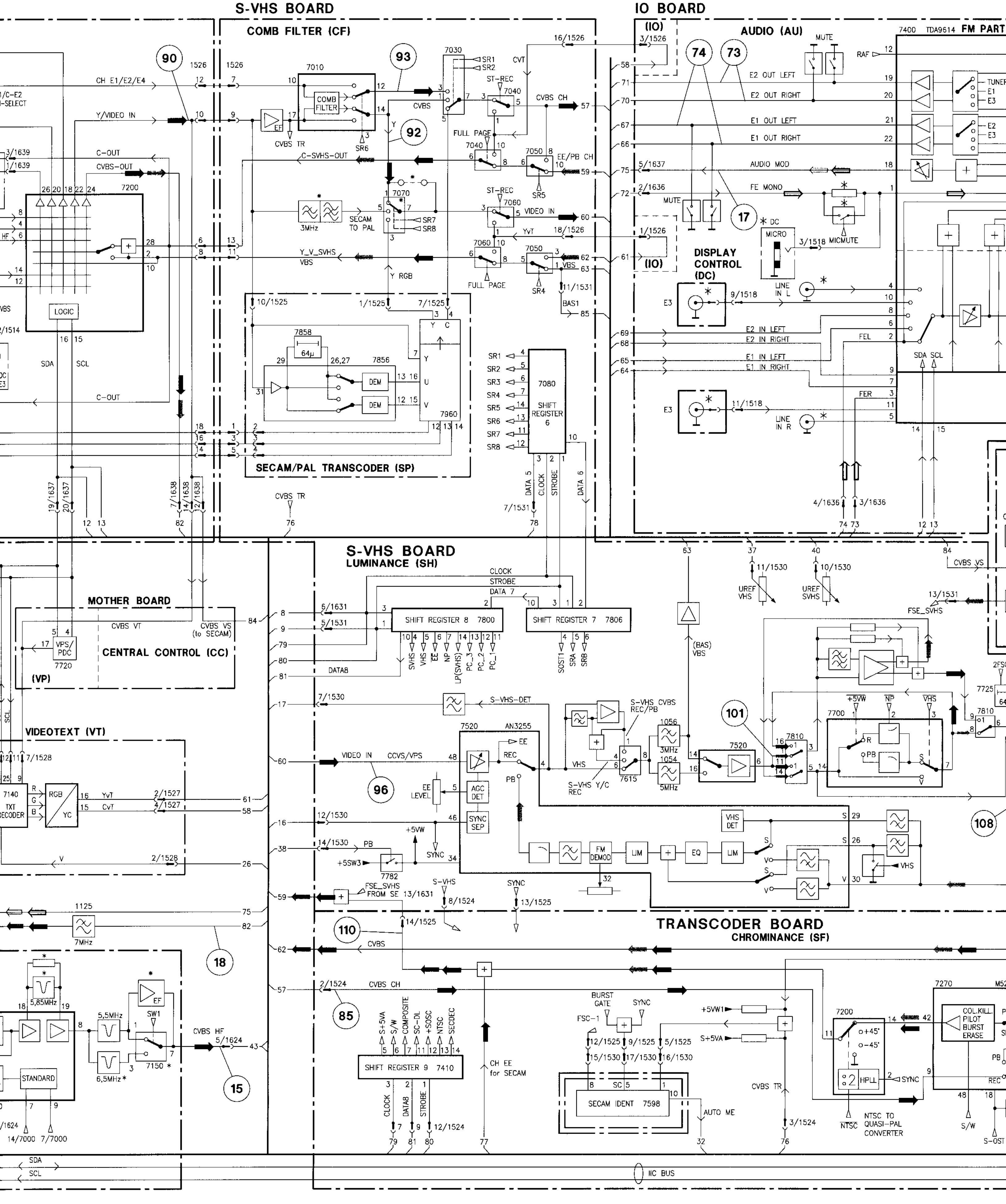

9514/9518/9519/9511
9514/9518/9519/9511
TV
TUMOD
PCB MOTHERBORD, TM
NC
SCL
SDA
SWITCH VOLTAGES
CVBS
33V
AUDIO
AGC
TUN
12FE
5A1
IF
IN
9526
9527
9514
1526
1527
1514
PCB S-VHS, CF
PCB S-VHS, CF, SH
PCB S-VHS, SH
1525
PCB SECAM/PAL TRANSCODER, SF
PCB SECAM/PAL
Transcoder, SF, SP
1524
1530
1531
PCB MOTHERBOARD, VS
SECIDENT
FSC
PB
MIX.SYN
UREF VHS
UREF SVHS
HI-P
SVHS DET
FM T.T.
UNC.FM
627KHZ
PB-FM
E1/E2/E4
SVHS
VBS
DOS
REC.
VT
R
G
B
CH
RGB
SP/RGB
5SW3
EE/PB
H/2
+12VF
HI-CH
DATA
CLOCK
STROBE
AUTO SEC
S-VHS
PLL SYNC
PCB INPUT/OUTPUT, AU, IO
INPUT/OUTPUT,IO
HF
N.C.
VS
1639
PCB MOTHERBOARD,CC
PCB MOTHERBOARD,HC
SH1
SHC
SH2
LH2
LHC
LH1
AH2
AHC
AH1
FEH1
FEH2
1504
8504
ERASE
L4
FEH
HEAD
TE
SOC1012T
PCB FRONTEND, FE
BGI
EURO
1624
1625
AGC-ADJ
AFC
ONLY ON VERSION
AUDIO-L
AUDIO-R
K1
K2
5A2
10
15
16
37
67
85
87
88
89
90
94
95
109
110

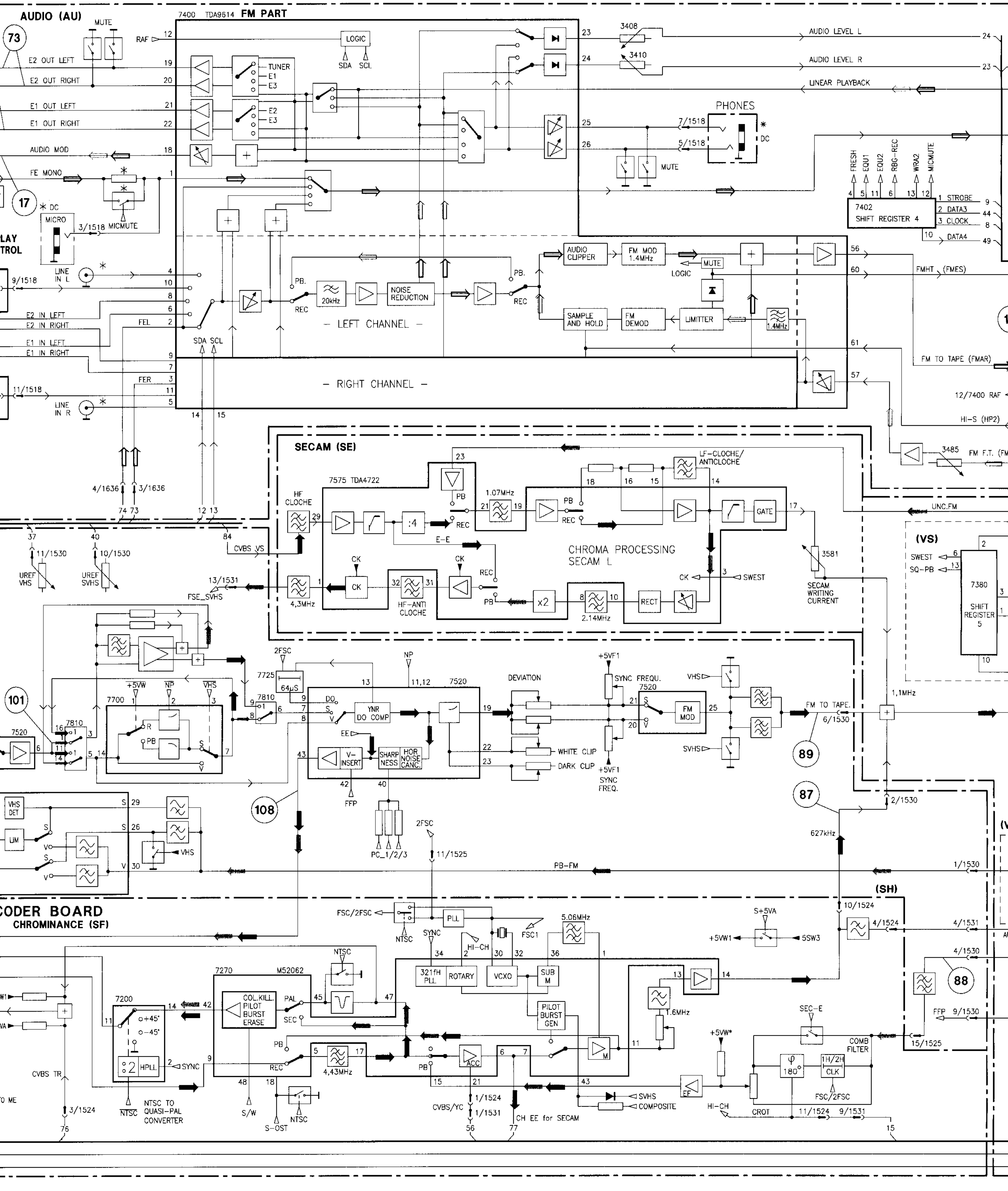

9514/9518/9519/9511
9518/9519/9511/9527
9519/9511/9527
9511/9527
9527
9514
9508
9518
1901
S-VHS
9519
MEASURE PIN
RS-232
81
80
L4
1527
1514
1508
1518
1519
1505
1503
1504
1526
VT
DOS
VBS
CH
CVBS
N.C.
MOT.2
MOT.1
+12V
MICRO
MUTE
HEAD PHONE
AUDIO-R
AUDIO-L
BIAS
AUDIO
REC
PB
ERASE
CTL
INPUT/OUTPUT,IO
INPUT/OUTPUT,AU
9538
TXD
RTS
RXD
V+out
E1/E2/E4
SVHS
PCB INPUT/OUTPUT, AU, IO
EURO AV II/1917
EURO AV I/1916
AUDIO
L
R
9503
HF
DATA
CLOCK
STROBE
VS
MOD.
SCART-CONTROL
5VSTB
PR50
AV-1
AV-2
SCL
SDA
F.T.
+12VF
12A
5A1
RAF
FMES
WR-A
HI-S
K1
K2
14A
1639
1638
1637
1636
1635
PCB MOTHERBOARD,CC
PCB MOTHERBOARD,TM
PCB MOTHER-BOARD,TM
PCB MOTHER-BOARD,DE
37
44
18
72
20
19
17
58
PCB MOTHERBOARD,HC
1506
1501
POS
HM02
HM03
HM01
PCB MOTHER-BOARD,DE
8/17M
5D1
1502
C-F
FG
PCB MOTH
CENTRAL CONT
DECK ELECTRO
VIDEO/ CHROM
SECAM, S
HEAD AMPLIFIE
ON SREEN DISPL
VIDEO PROGRAM S
TUMOD+PERIPH
SH1
SHC
SH2
LH2
LHC
LH1
AH2
AHC
AH1
FEH1
FEH2
9501
1504
8504
ERASE
FEH
L1
HEAD DISC MOTOR
CAPSTANMOTOR
MOT
NC
L8
THREADINGMOTOR
L3
AH
AEH
CTL
DECK MECHANISM,DM
TE
TA
SOC1012T
FTA
WT1
LEFT
WT2
RIGHT
PCB MOTHERBOARD,CC
1510
9510
FILAMENT CONTROL
BUS-INIT
SCART CONTROL
EDIT1
EDIT2
TRIG EDIT-
PREROL
RESET
STBY
-28V
3VB

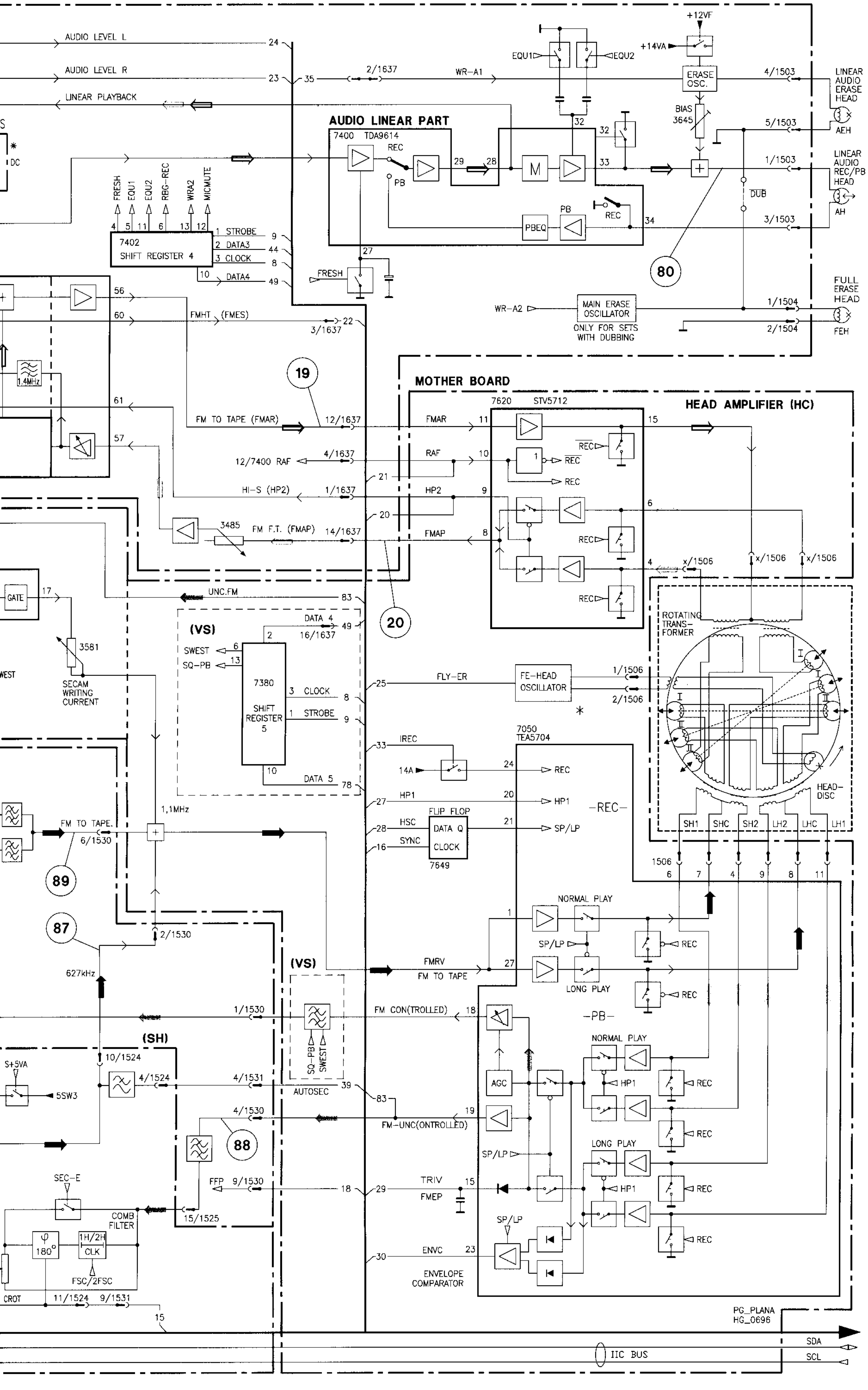

PCB MOTHERBOARD
CENTRAL CONTROL,CC
DECK ELECTRONIC, DE
VIDEO/ CHROMA, VS
SECAM, SE
HEAD AMPLIFIER, HC
ON SREEN DISPLAY, OS
VIDEO PROGRAM SYSTEM, VP
TUMOD+PERIPHERIE, TM
PCB POWER SUPPLY, PS
PCB VPT, VT
KENNSTREIFEN
DECK MECHANISM,DM
CAPSTANMOTOR
THREADINGMOTOR
S-VHS
RS-232
MEASURE PIN
AUDIO
INPUT/OUTPUT,AU
PCB MOTHERBOARD,TM
PCB MOTHER-BOARD,TM
PCB MOTHER-BOARD,DE
PCB MOTHERBOARD, CC
PCB MOTHERBOARD,CC
SOC1012T
FTA
TA
WT2 RIGHT
AH
AEH
CTL
REC
PB
ERASE
FILAMENT CONTROL
12A
14M
8/17M
-28V
CSW
GND A
GND D
GND M1
GND M2
5VSTBY
33V
5D
5A
5S
STBY
9519/9511/9527
9511/9527
9501
9503
9508
9510
9527
9538
1501
1502
1505
1509
1510
1511
1527
1528
1529
1635
1636
1637
1638
1901
81
80
72
20
19
17
58
5
6

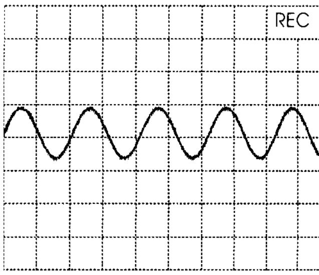
Block Diagram Analog S-VHS


IO BOARD
INPUT / OUTPUT (IO)
S-VHS BOARD
COMB FILTER
SCART-1 1916
SKART-2 1917
7110
C-E1/C-E2
C-IN-SELECT
CH E1/E2/E4
Y/VIDEO IN
C-OUT
CVBS-OUT
MB-CC
E1 IN
E2 IN
CVBS HF
7200
LOGIC
SDA
SCL
7/1514
DC E4
2/1514
DC E3
1/1511
3/1639
1/1639
16:9
L-TH-OFF
RED
GREEN
BLUE
R
G
B
AU
LINE OUT L
LINE OUT R
MUTE
E1 VIDEO IN
C-OUT(UPSTREAM)
S1-PIN10
SC18
C-OUT(DOWNSTREAM)
SC28
7000 SHIFT REG. 3
SH-B-SW
CH-R-SW
L-TH-OFF
DC-E1/C-E2
C-IN SELECT
CLOCK
STROBE
DATA2
DATA3
17/1638
16/1638
18/1638
2/1638
3/1638
6/1638
1/1638
5/1639
SCART CONTROL
16:9 DC
19/1637
20/1637
7/1638
14/1638
12/1638
CVBS TR
3MHz
Y_V_SVHS
VBS
10/1525
7858
64µ
SECAM/PAL T
1526
7010
90
IIC BUS
FE BOARD
FRONT END (FE)
7000 SHIFT REGISTER 2
DATA1
SECAM
* ONLY FOR MULTISTANDARD
A1
A2
9/7050
7/7050
SW1
2/1625
3/1625
14/1625
7200
NICAM DECODER
PAL I
7050 AUDIO PART
6.26/5.74MHz
5.5/6MHz
FM2 DEMOD
FM1 DEMOD
AM DEMOD
7100
STEREO/ DUAL SOUND DECODER
NOT FOR PAL I
AUDIO-L
AUDIO-R
FE_MONO
FEL
FER
7/1625
6/1625
9/1625
13
16
17
FOR BG-ONLY SETS
MOTHER BOARD
CENTRAL CONTROL (CC)
CVBS VT
CVBS VS (to SECAM)
VPS/PDC
7720
(VP)
VIDEOTEXT (VT)
7/1528
7140 TXT DECODER
RGB
YC
YvT
CvT
2/1527
4/1527
2/1528
MOTHER BOARD
TUNER MODULATOR (TM)
+14A
+12FE
ONLY PAL I
MODULATOR
1750
5.5/6MHz AUDIO FM MOD
VIDEO CLAMP
AERIAL IN
AERIAL OUT
MOD
CONTROL
PLL
VHF
UHF
MIX
AUDIO MOD
CVBS MOD
1125
7MHz
18
IF IN
10/1624
1/1624
1030
SW1
TUN-AGC
VIDEO PART
7050 TDA 9813
5,85MHz
AGC DET.
AFC DET.
STANDARD
4/1624
3/1624
14/7000
7/7000
5,5MHz
7150
CVBS HF
5/1624
15
CVBS HF
FOLLOWME
FOLLOW TV
CVBS MOD
RECORD VIDEO
RECORD AUDIO
PLAYBACK VIDEO
PLAYBACK AUDIO
*OPTION

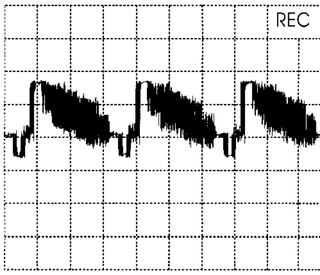

S-VHS BOARD
COMB FILTER (CF)
IO BOARD
(IO)
AUDIO (AU)
7400 TDA9614 FM PART
MUTE
RAF
E2 OUT LEFT
E2 OUT RIGHT
E1 OUT LEFT
E1 OUT RIGHT
AUDIO MOD
FE MONO
TUNER
E1
E3
E2
E3
CH E1/E2/E4
Y/VIDEO IN
C-OUT
CVBS-OUT
C-SVHS-OUT
7200
7010
COMB FILTER
7030
SR1
SR2
ST-REC
7040
CVBS CH
CVT
CVBS
CVBS TR
SR6
FULL PAGE
7050
EE/PB CH
SR5
7070
SECAM TO PAL
3MHz
SR7
SR8
7060
VIDEO IN
YvT
Y_V_SVHS
VBS
Y RGB
SR4
BAS1
LOGIC
SDA
SCL
7858
64µ
7856
DEM
7960
SECAM/PAL TRANSCODER (SP)
7080
SHIFT REGISTER 6
DATA 5
CLOCK
STROBE
DATA 6
MUTE
MICRO
DC
MICMUTE
DISPLAY CONTROL (DC)
LINE IN L
LINE IN R
E2 IN LEFT
E2 IN RIGHT
E1 IN LEFT
E1 IN RIGHT
FEL
FER
SDA SCL
E3
90
93
92
74
73
17
S-VHS BOARD
LUMINANCE (SH)
MOTHER BOARD
CENTRAL CONTROL (CC)
CVBS VT
CVBS VS (to SECAM)
VPS/PDC
7720
(VP)
CLOCK
STROBE
DATA 7
SHIFT REGISTER 8 7800
SHIFT REGISTER 7 7806
SVHS
VHS
EE
NP
LP(SVHS)
PC_3
PC_2
PC_1
SOST1
SRA
SRB
DATA8
(BAS) VBS
UREF VHS
UREF SVHS
CVBS VS
FSE_SVHS
VIDEOTEXT (VT)
7140 TXT DECODER
RGB YC
YvT
CvT
S-VHS-DET
7520 AN3255
EE
REC
PB
VIDEO IN CCVS/VPS
96
EE LEVEL
AGC DET
SYNC SEP
VHS
S-VHS CVBS REC/PB
S-VHS Y/C REC
7615
1056 3MHz
1054 5MHz
7520
101
7810
7700
+5VW
NP
VHS
R
PB
7725
2FSC
108
VHS DET
FM DEMOD
LIM
EQ
+5VW
SYNC
+5SW3
PB
7782
FSE_SVHS FROM SE 13/1631
S-VHS
SYNC
1125
7MHz
18
TRANSCODER BOARD
CHROMINANCE (SF)
110
CVBS
CVBS CH
85
5,85MHz
5,5MHz
6,5MHz*
SW1
EF
7150
STANDARD
CVBS HF
15
S+5VA
S/W
COMPOSITE
SC-DL
+SOSC
NTSC
SECDEC
SHIFT REGISTER 9 7410
CLOCK
DATA8
STROBE
CH EE for SECAM
BURST GATE
SYNC
FSC-1
SECAM IDENT 7598
AUTO ME
+5VW1
S+5VA
CVBS TR
7200
+45°
-45°
HPLL
SYNC
NTSC
NTSC TO QUASI-PAL CONVERTER
7270
COL.KILL. PILOT BURST ERASE
PB
REC
S/W
S-OST
SDA
SCL
IIC BUS
14/7000
7/7000


AUDIO (AU)
73
MUTE
7400 TDA9614 FM PART
RAF
LOGIC
SDA SCL
E2 OUT LEFT
E2 OUT RIGHT
TUNER
E1
E3
E1 OUT LEFT
E1 OUT RIGHT
E2
E3
AUDIO MOD
FE MONO
17
DC
MICRO
3/1518
MICMUTE
LAY
TROL
LINE IN L
9/1518
E2 IN LEFT
E2 IN RIGHT
FEL
E1 IN LEFT
E1 IN RIGHT
FER
11/1518
LINE IN R
PB.
REC
20kHz
NOISE REDUCTION
- LEFT CHANNEL -
- RIGHT CHANNEL -
AUDIO CLIPPER
FM MOD 1.4MHz
MUTE
LOGIC
SAMPLE AND HOLD
FM DEMOD
LIMITTER
1.4MHz
3408
3410
AUDIO LEVEL L
AUDIO LEVEL R
LINEAR PLAYBACK
PHONES
7/1518
5/1518
DC
MUTE
FRESH
EQU1
EQU2
RBG-REC
WRA2
MICMUTE
7402
SHIFT REGISTER 4
1 STROBE
2 DATA3
3 CLOCK
10 DATA4
FMHT (FMES)
FM TO TAPE (FMAR)
12/7400 RAF
HI-S (HP2)
3485
FM F.T. (FM
4/1636
3/1636
SECAM (SE)
7575 TDA4722
HF CLOCHE
1.07MHz
PB
REC
:4
E-E
LF-CLOCHE/ ANTICLOCHE
GATE
CHROMA PROCESSING SECAM L
CK
HF-ANTI CLOCHE
x2
2.14MHz
RECT
4,3MHz
SWEST
3581
SECAM WRITING CURRENT
UNC.FM
(VS)
SWEST
SQ-PB
7380
SHIFT REGISTER 5
11/1530
10/1530
UREF VHS
UREF SVHS
CVBS VS
13/1531
FSE_SVHS
101
7520
7810
7700
+5VW
NP
VHS
R
PB
S
V
2FSC
7725
64μS
7810
DO
S
V
7520
YNR DO COMP
EE
V-INSERT
SHARPNESS
HOR NOISE CANC.
FFP
PC_1/2/3
DEVIATION
WHITE CLIP
DARK CLIP
+5VF1
SYNC FREQU.
7520
FM MOD
SYNC FREQ.
VHS
SVHS
FM TO TAPE
6/1530
89
87
627kHz
2/1530
1,1MHz
108
VHS DET
LIM
2FSC
11/1525
PB-FM
1/1530
(SH)
CODER BOARD
CHROMINANCE (SF)
FSC/2FSC
NTSC
PLL
SYNC
HI-CH
FSC1
5.06MHz
10/1524
4/1524
4/1531
S+5VA
+5VW1
5SW3
4/1530
88
7270 M52062
COL.KILL PILOT BURST ERASE
321fH PLL
ROTARY
VCXO
SUB M
PILOT BURST GEN
PAL
SEC
1.6MHz
7200
+45°
-45°
:2 HPLL
SYNC
NTSC TO QUASI-PAL CONVERTER
4,43MHz
ACC
PB
REC
SVHS
COMPOSITE
+5VW*
EF
HI-CH
CROT
SEC-E
COMB FILTER
180°
1H/2H CLK
FSC/2FSC
FFP 9/1530
15/1525
11/1524
9/1531
CVBS TR
3/1524
S/W
S-OST
CVBS/YC
1/1524
1/1531
CH EE for SECAM
O ME

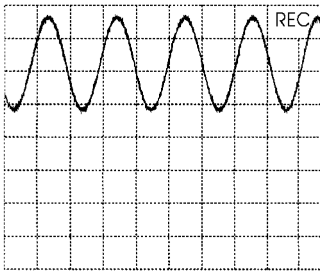

AUDIO LEVEL L
AUDIO LEVEL R
LINEAR PLAYBACK
AUDIO LINEAR PART
7400 TDA9614
REC
PB
M
PBEQ
FRESH
EQU1
EQU2
RBG-REC
WRA2
MICMUTE
7402
SHIFT REGISTER 4
STROBE
DATA3
CLOCK
DATA4
+12VF
+14VA
ERASE OSC.
BIAS 3645
WR-A1
2/1637
DUB
80
WR-A2
MAIN ERASE OSCILLATOR
ONLY FOR SETS WITH DUBBING
LINEAR AUDIO ERASE HEAD
AEH
LINEAR AUDIO REC/PB HEAD
AH
FULL ERASE HEAD
FEH
4/1503
5/1503
1/1503
3/1503
1/1504
2/1504
FMHT (FMES)
3/1637
1.4MHz
19
FM TO TAPE (FMAR)
12/1637
12/7400 RAF
4/1637
HI-S (HP2)
1/1637
3485
FM F.T. (FMAP)
14/1637
20
MOTHER BOARD
7620 STV5712
HEAD AMPLIFIER (HC)
FMAR
RAF
HP2
FMAP
x/1506
ROTATING TRANSFORMER
HEAD-DISC
SH1 SHC SH2 LH2 LHC LH1
1506
GATE
UNC.FM
3581
SECAM WRITING CURRENT
(VS)
DATA 4
16/1637
SWEST
SQ-PB
7380
SHIFT REGISTER 5
CLOCK
STROBE
DATA 5
FLY-ER
FE-HEAD OSCILLATOR
1/1506
2/1506
*
7050 TEA5704
IREC
14A
HP1
HSC
SYNC
FLIP FLOP
DATA Q
CLOCK
7649
SP/LP
-REC-
1,1MHz
FM TO TAPE
6/1530
89
87
2/1530
627kHz
NORMAL PLAY
LONG PLAY
FMRV
FM TO TAPE
1/1530
FM CON(TROLLED)
-PB-
(SH)
S+5VA
5SW3
10/1524
4/1524
4/1531
AUTOSEC
4/1530
88
FM-UNC(ONTROLLED)
AGC
TRIV
FMEP
FFP 9/1530
15/1525
SEC-E
COMB FILTER
180°
1H/2H CLK
FSC/2FSC
CROT
11/1524
9/1531
ENVC
ENVELOPE COMPARATOR
PG_PLANA HG_0696
SDA
SCL
IIC BUS



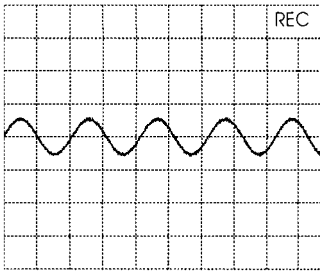
A: DC, 1 V/Div, 500us/Div
IC 7100 Pin 11/12



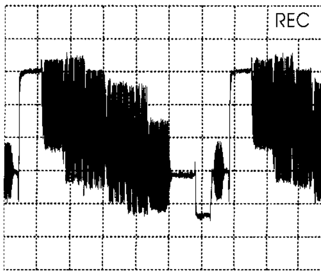
A: DC, 500mV/Div, 20us/Div
Connector 1624 Pin 5



A: DC, 500mV/Div, 500us/Div
Connector 1625 Pin 9



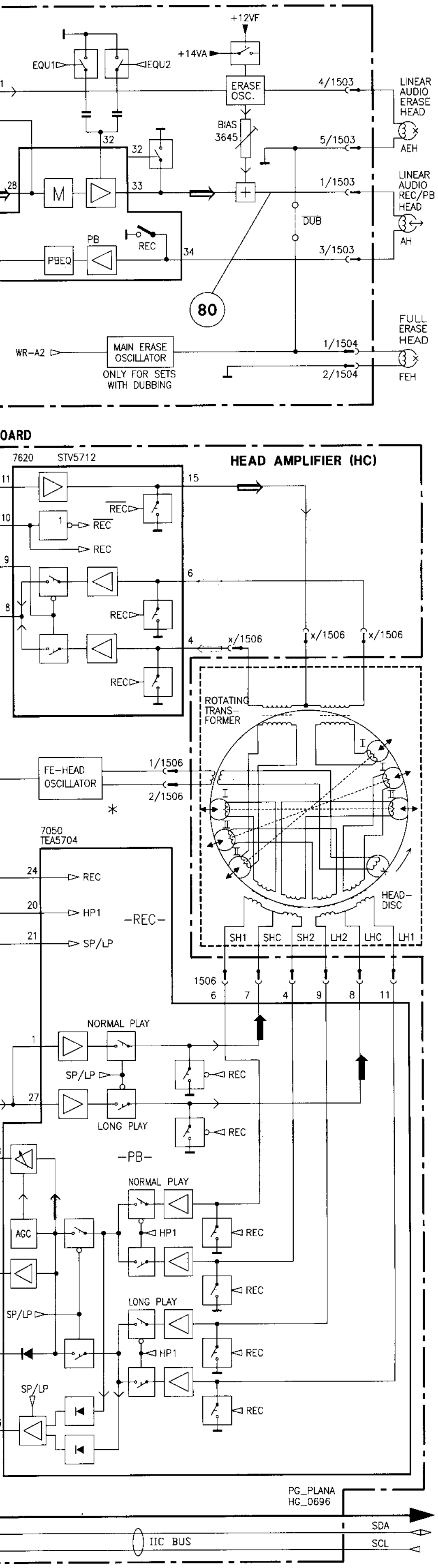
A: DC, 1 V/Div, 500us/Div
Connector 1637 Pin 5

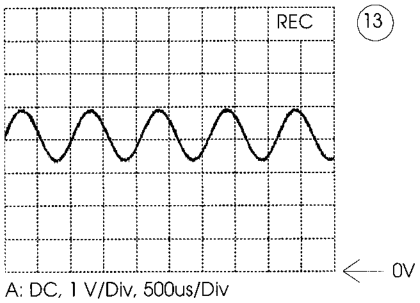


A: DC, 500mV/Div, 10us/Div
Connector 1638 Pin 7

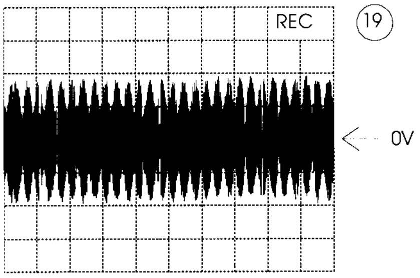
Interconnections:

PS page 3-27	SE page 3-35	DE
FE page 3-29/31	HC page 3-36	OS
TM page 3-34	VS page 3-37	CC

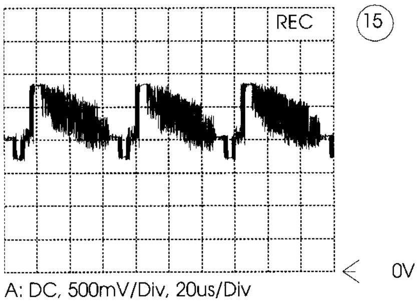

+12VF
EQU1
EQU2
+14VA
ERASE OSC.
4/1503
LINEAR AUDIO ERASE HEAD
AEH
BIAS 3645
5/1503
32
28
M
33
1/1503
LINEAR AUDIO REC/PB HEAD
DUB
PB
REC
PBEQ
34
3/1503
AH
80
FULL ERASE HEAD
WR-A2
MAIN ERASE OSCILLATOR
ONLY FOR SETS WITH DUBBING
1/1504
2/1504
FEH
OARD
7620
STV5712
HEAD AMPLIFIER (HC)
15
REC
6
4
x/1506
ROTATING TRANS-FORMER
FE-HEAD OSCILLATOR
1/1506
2/1506
7050
TEA5704
24
20
21
HP1
SP/LP
-REC-
HEAD-DISC
SH1
SHC
SH2
LH2
LHC
LH1
1506
7
9
8
11
NORMAL PLAY
LONG PLAY
-PB-
AGC
PG_PLANA
HC_0696
SDA
SCL
IIC BUS



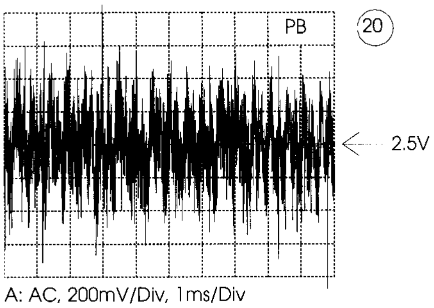
A: DC, 1 V/Div, 500us/Div
IC 7100 Pin 11/12



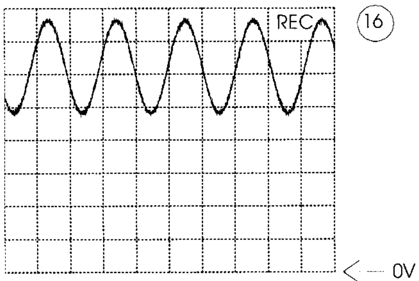
A: DC, 100mV/Div, 1ms/Div
Connector 1637 Pin 12



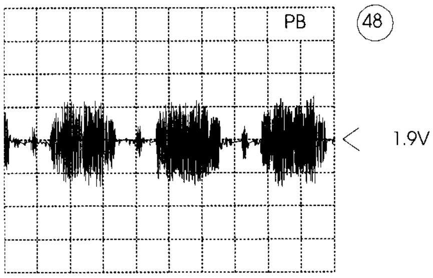
A: DC, 500mV/Div, 20us/Div
Connector 1624 Pin 5



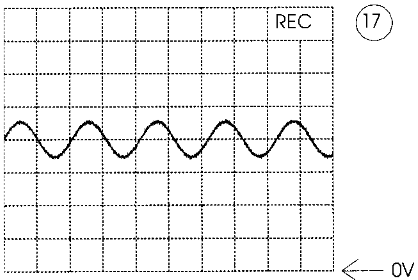
A: AC, 200mV/Div, 1ms/Div
Connector 1637 Pin 14



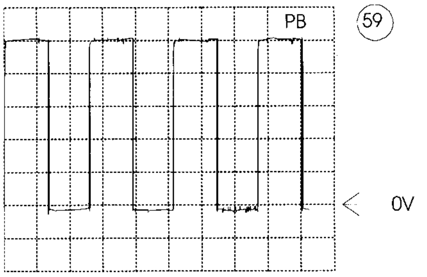
A: DC, 500mV/Div, 500us/Div
Connector 1625 Pin 9



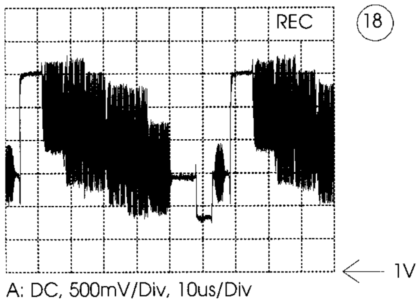
A: AC, 200mV/Div, 20us/Div
IC 7320 Pin 23



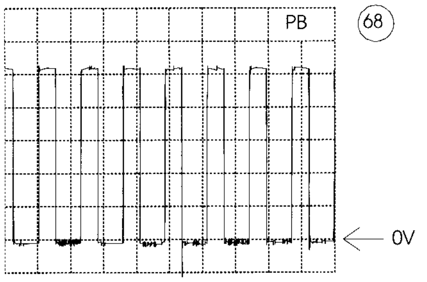
A: DC, 1 V/Div, 500us/Div
Connector 1637 Pin 5



A: DC, 1 V/Div, 10us/Div
IC 7085 Pin 25



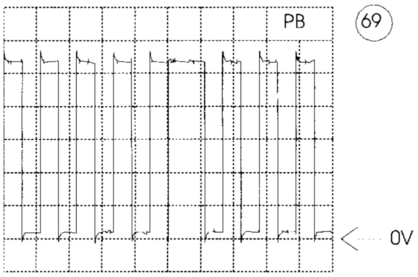
A: DC, 500mV/Div, 10us/Div
Connector 1638 Pin 7



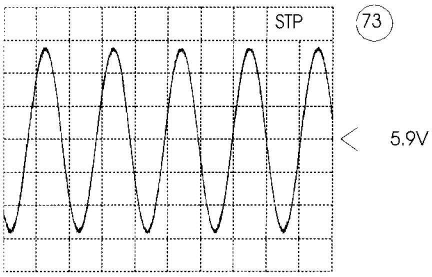
A: DC, 1 V/Div, 20us/Div
IC 7085 Pin 24

Interconnections:

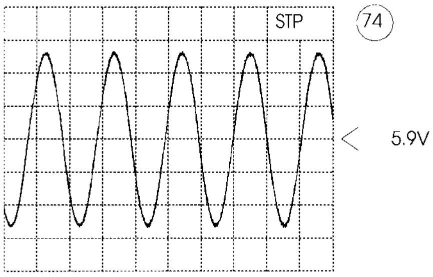
PS page 3-27	SE page 3-35	DE page 3-38	VP page 3-41	VT page 3-46	SF page 3-53
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP page 3-54
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC page 3-57...



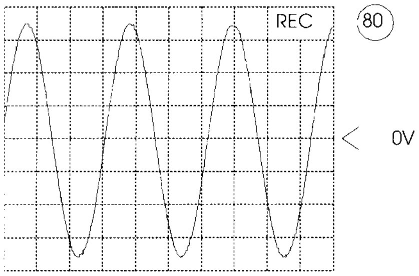
A: DC, 1 V/Div, 2ms/Div
IC 7085 Pin 12



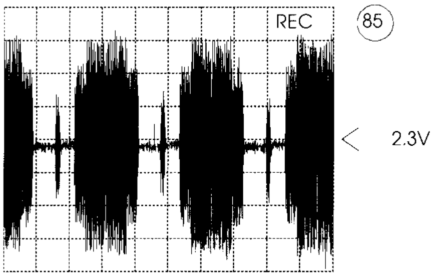
A: AC, 200mV/Div, 500us/Div
IC 7400 Pin 19/20



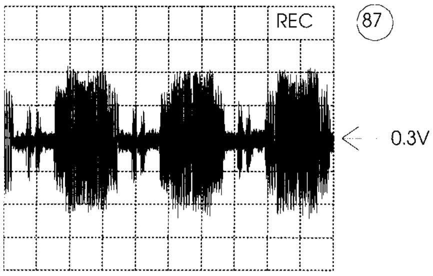
A: AC, 200mV/Div, 500us/Div
IC 7400 Pin 21/22



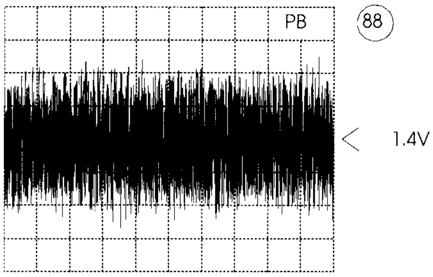
A: DC, 5 V/Div, 5us/Div
Connector 1503 Pin 1



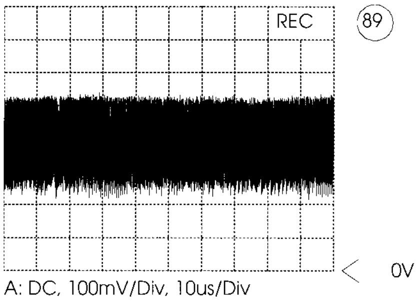
A: AC, 100mV/Div, 20us/Div
Connector 1524 Pin 2



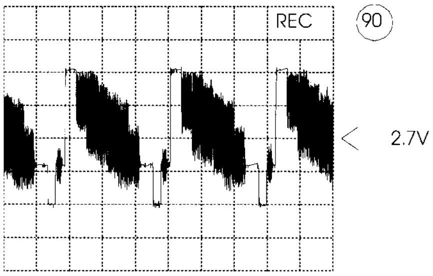
A: AC, 50mV/Div, 20us/Div
Connector 1530 Pin 2



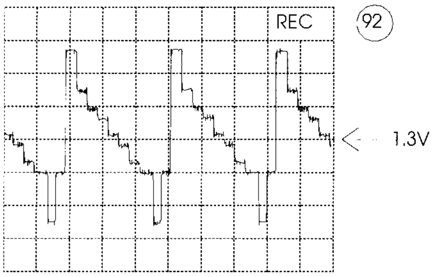
A: AC, 100mV/Div, 10us/Div
Connector 1530 Pin 4



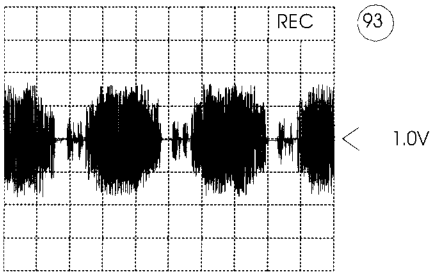
A: DC, 100mV/Div, 10us/Div
Connector 1530 Pin 6



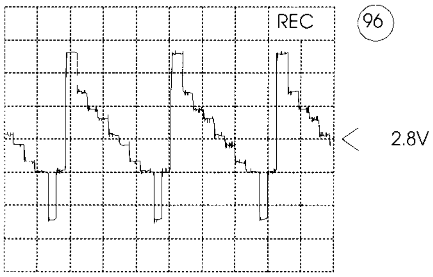
A: AC, 500mV/Div, 20us/Div
Connector 1526 Pin 9



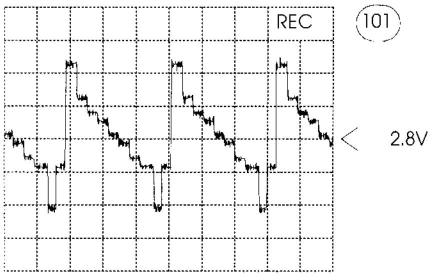
A: AC, 200mV/Div, 20us/Div
IC 7010 Pin 14



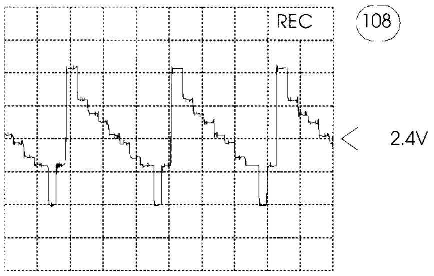
A: AC, 200mV/Div, 20us/Div
IC 7010 Pin 12



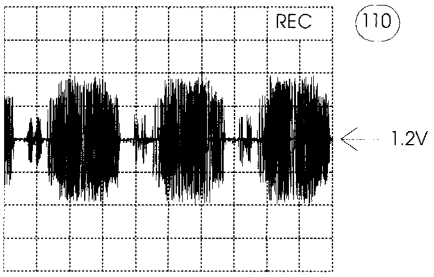
A: AC, 200mV/Div, 20us/Div
IC 7520 Pin 48



A: AC, 100mV/Div, 20us/Div
IC 7520 Pin 6

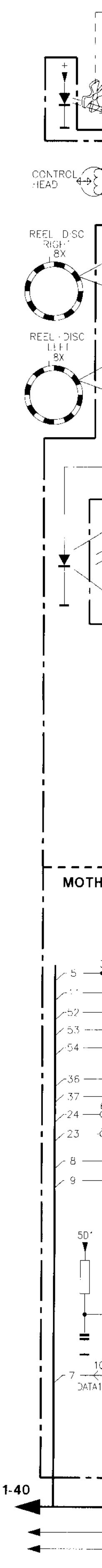


A: AC, 500mV/Div, 20us/Div
IC 7520 Pin 43

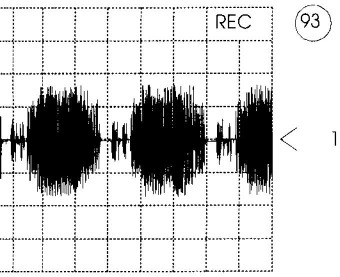


A: AC, 200mV/Div, 20us/Div
Connector 1525 Pin 14

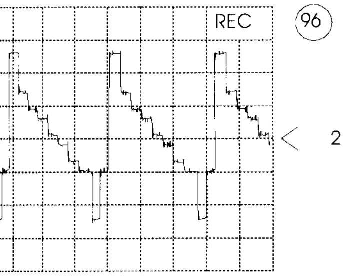
Block D


CONTROL
HEAD
REEL DISC
RIGHT
8X
REEL DISC
LEFT
8X
MOTH
5
52
53
54
36
37
24
23
8
9
7
DATA1
1-40

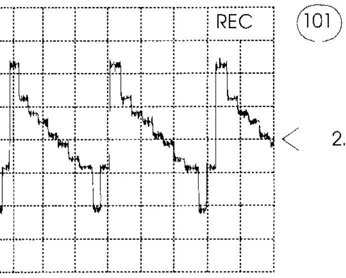
Block Diagram Digital



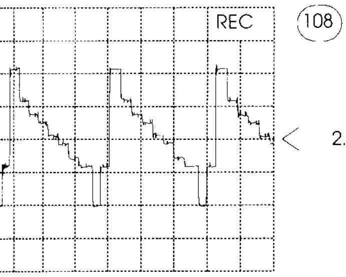
C, 200mV/Div, 20us/Div
10 Pin 12



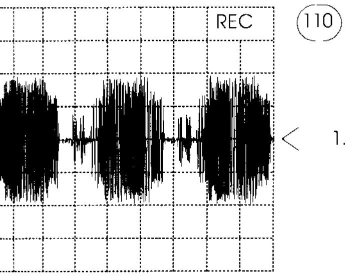
C, 200mV/Div, 20us/Div
20 Pin 48



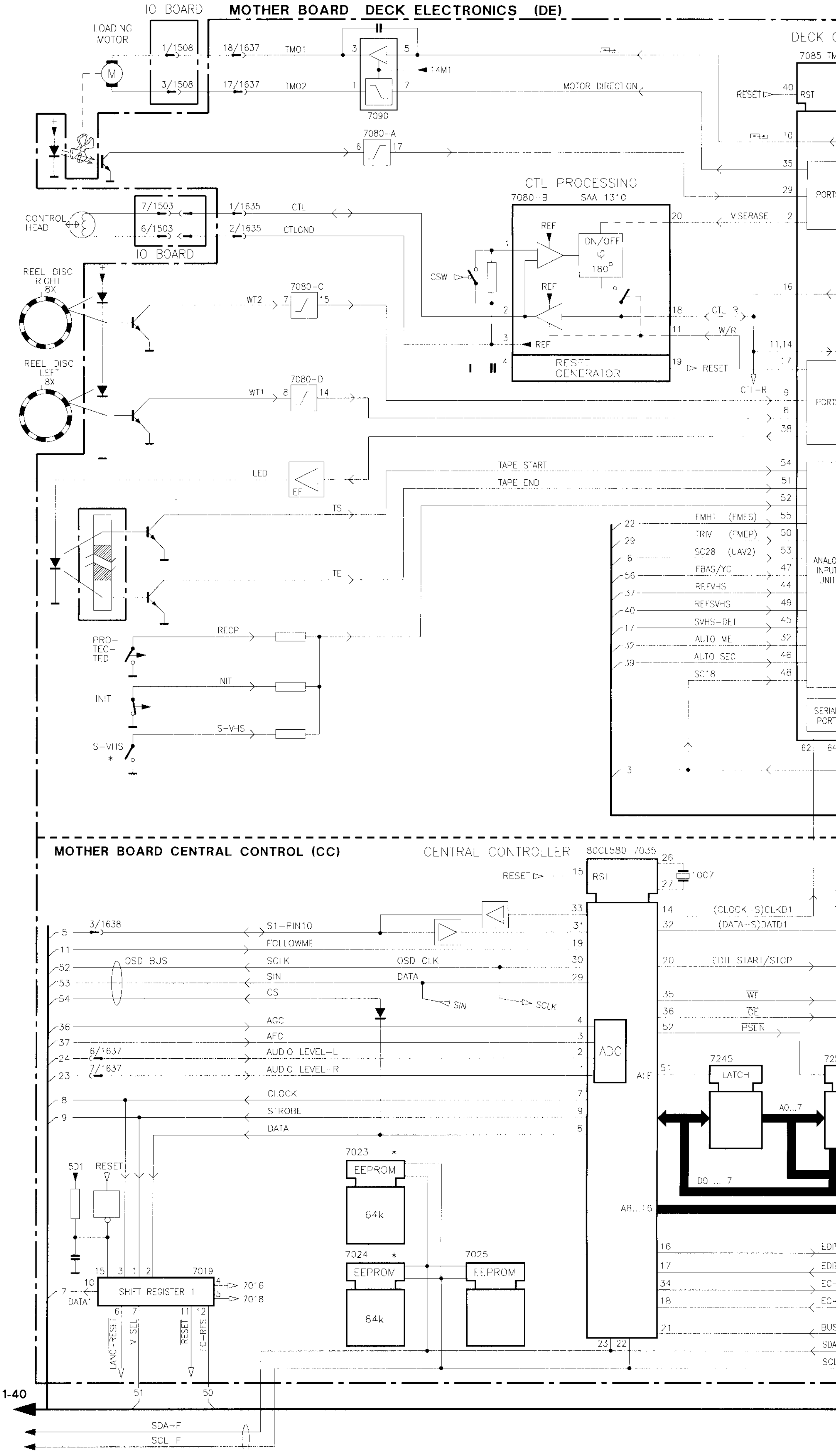
C, 100mV/Div, 20us/Div
20 Pin 6

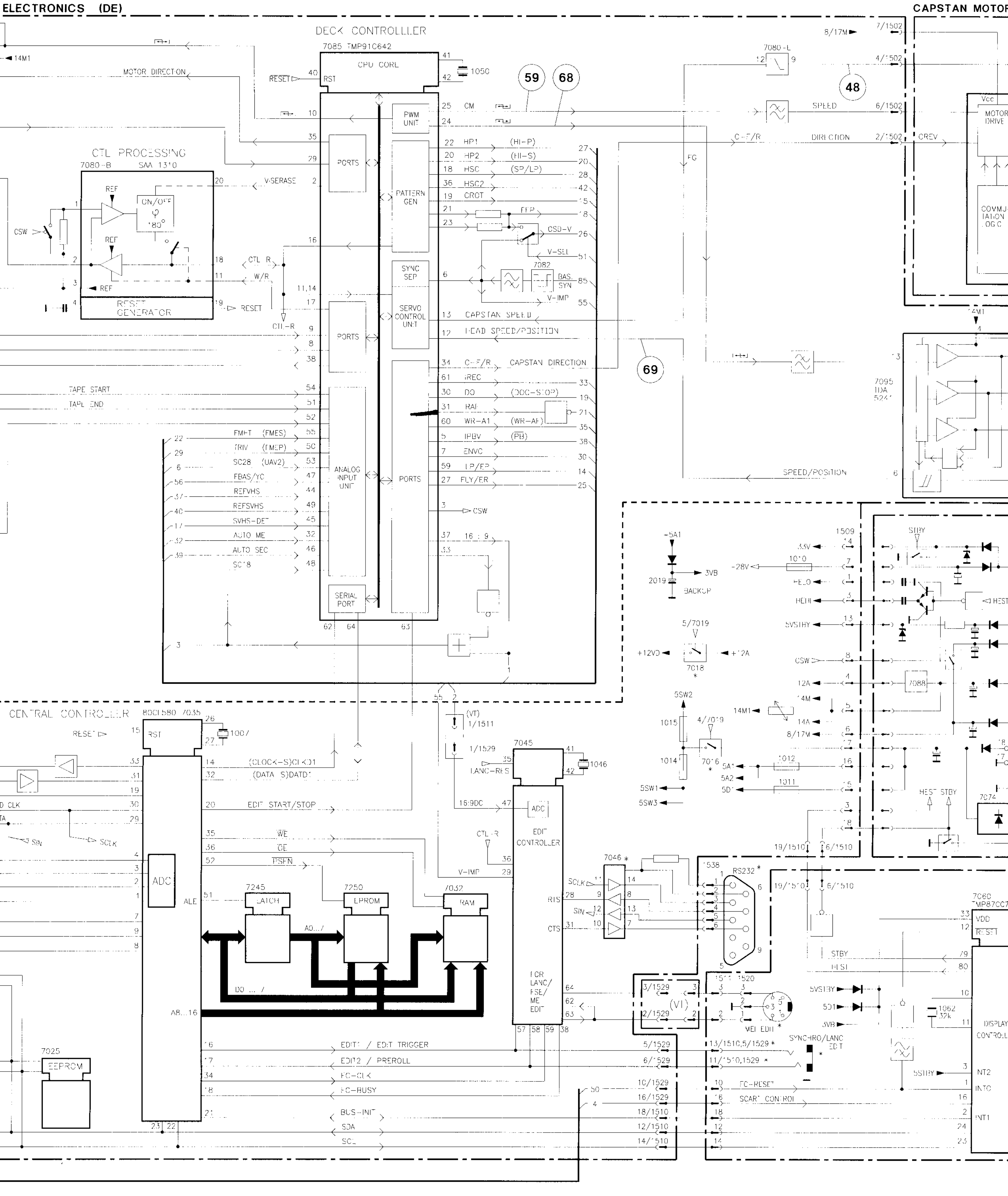


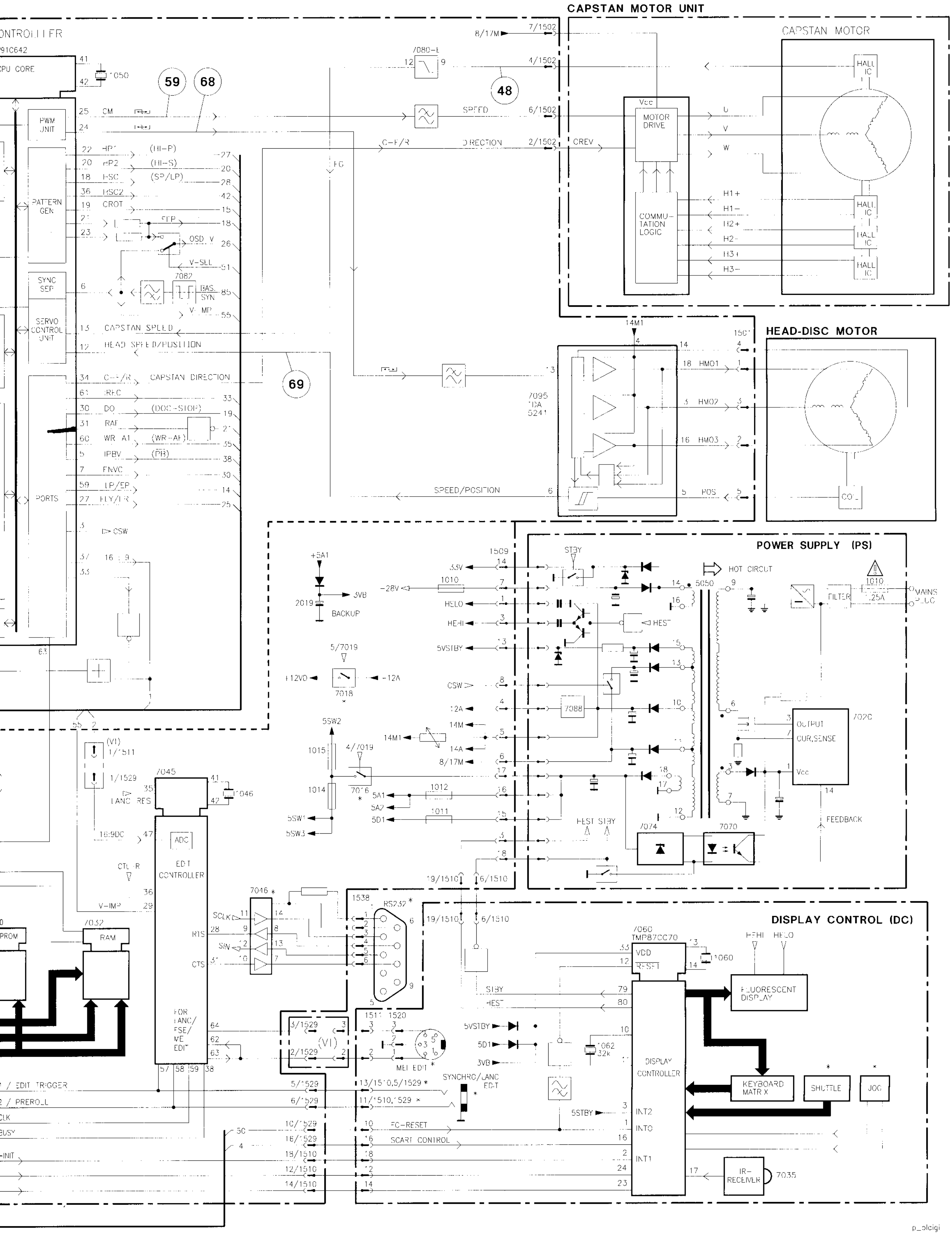
C, 500mV/Div, 20us/Div
20 Pin 43



C, 200mV/Div, 20us/Div
ector 1525 Pin 14

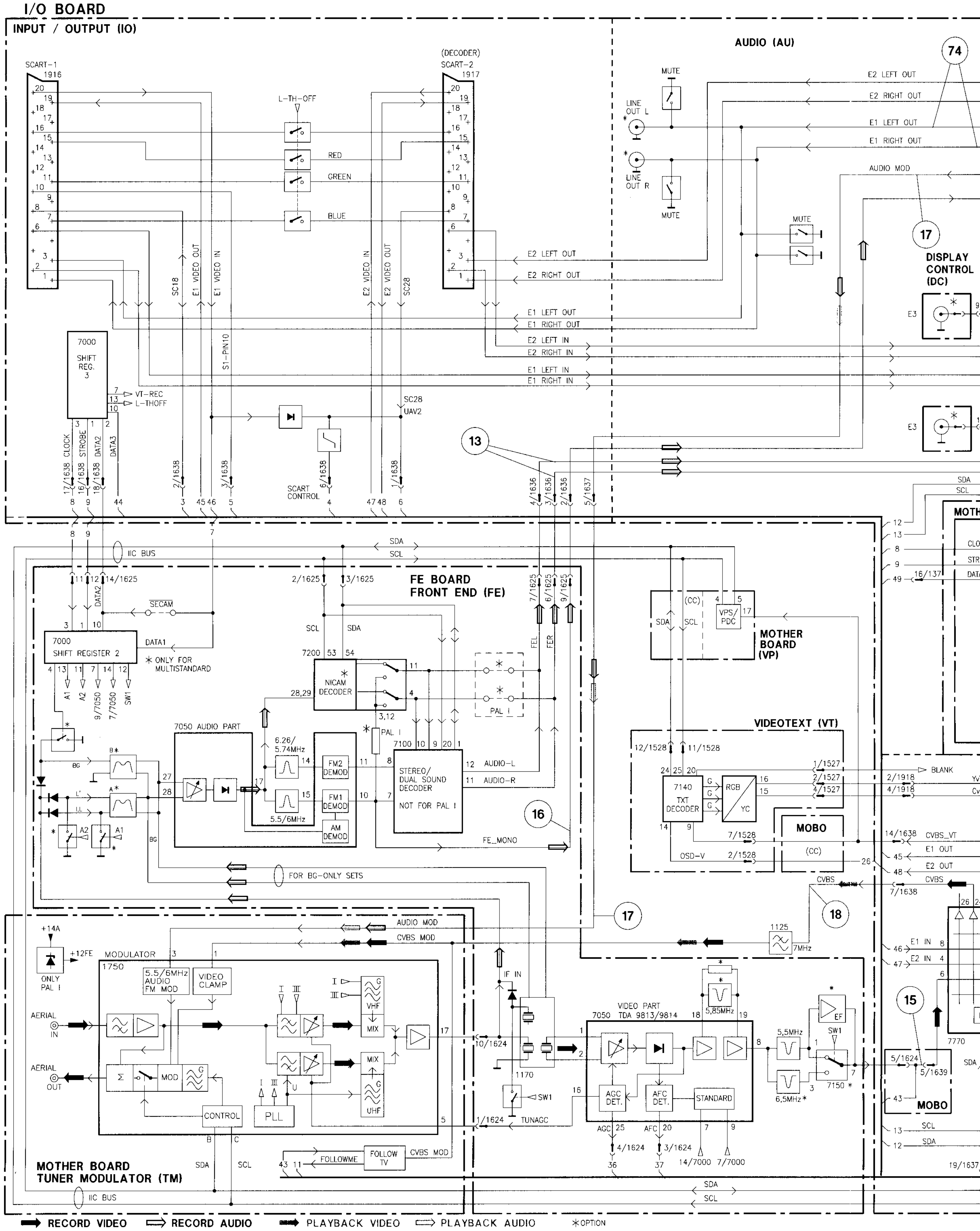

IO BOARD
MOTHER BOARD DECK ELECTRONICS (DE)
LOADING MOTOR
M
1/1508
3/1508
18/1637
17/1637
TMO1
TMO2
7090
14M1
MOTOR DIRECTION
DECK C
7085 TM
RESET
RST
7080-A
CTL PROCESSING
7080-B
SAA 1310
CONTROL HEAD
7/1503
6/1503
IO BOARD
1/1635
2/1635
CTL
CTLGND
V.SERASE
REF
ON/OFF
180°
CSW
CTL R
W/R
RESET
RESET GENERATOR
CTL-R
REEL DISC RIGHT 8X
REEL DISC LEFT 8X
7080-C
WT2
7080-D
WT1
PORT
LED
EF
TAPE START
TAPE END
TS
TE
FMHI (FMFS)
TRIV (FMDP)
SC28 (LAV2)
FBAS/YC
REFVHS
REFSVHS
SVHS-DET
AUTO ME
AUTO SEC
SC18
ANALOG INPUT UNIT
SERIAL PORT
PRO-TEC-TED
RECP
INIT
NIT
S-VHS
MOTHER BOARD CENTRAL CONTROL (CC)
CENTRAL CONTROLLER
80CL580 7035
RESET
RST
1007
3/1638
S1-PIN10
FOLLOWME
OSD BUS
SCLK
SIN
CS
OSD CLK
DATA
SIN
SCLK
AGC
AFC
6/1637
7/1637
AUDIO LEVEL-L
AUDIO LEVEL-R
ADC
AIF
CLOCK
STROBE
DATA
(CLOCK-S)CLKD1
(DATA-S)DATD1
EDIT START/STOP
WR
OE
PSEN
7245
LATCH
A0...7
D0 ... 7
A8...15
7023
EEPROM
64k
7024
EEPROM
64k
7025
EEPROM
5D1
RESET
7019
SHIFT REGISTER 1
DATA
7016
7018
LANC-RESET
V SEL
RESET
EC-RES
EDI
BUS
SDA
SCL
1-40
51
50
SDA-F
SCL F

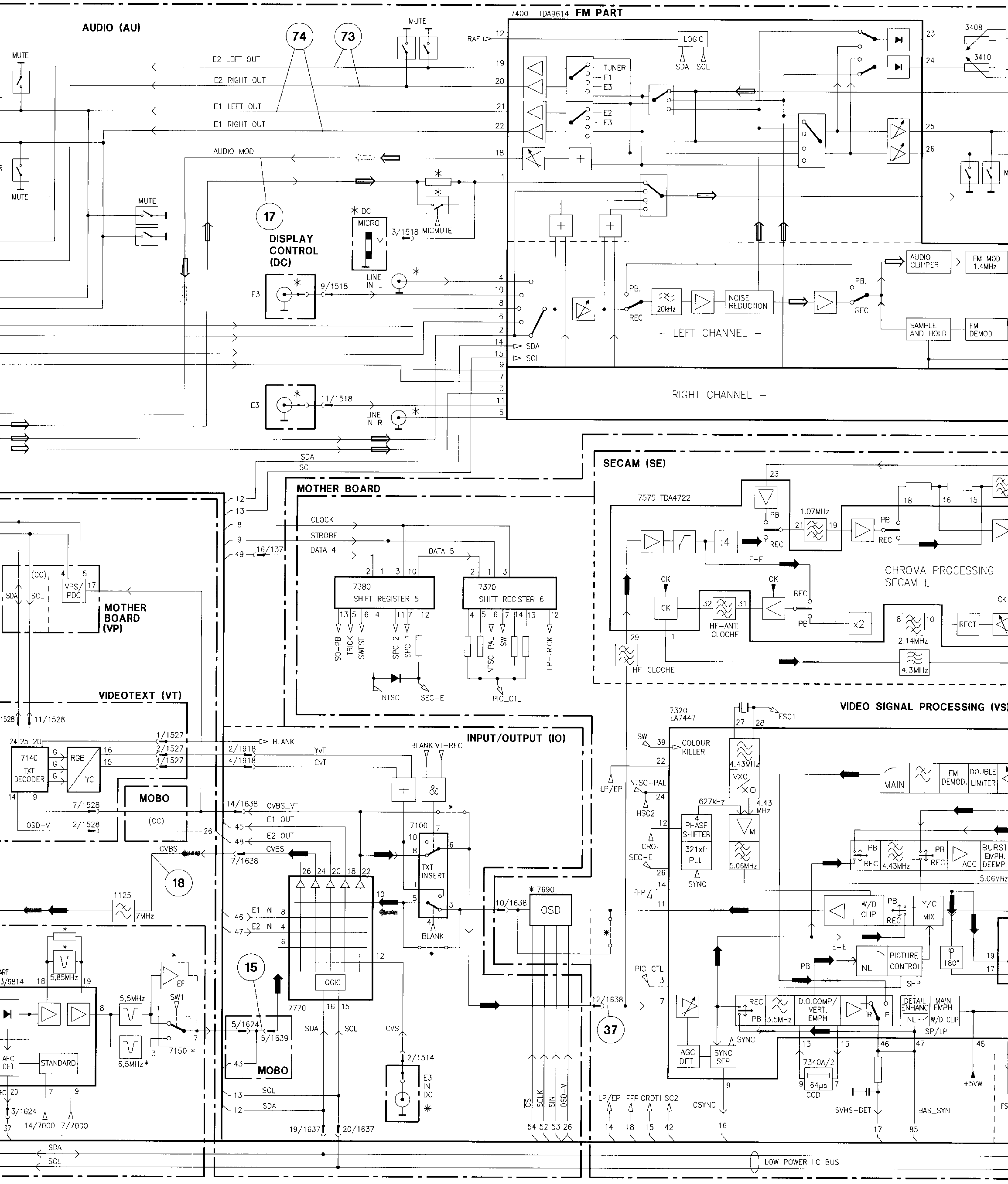

ELECTRONICS (DE)
CAPSTAN MOTOR
DECK CONTROLLLER
7085 TMP91C642
CPU CORE
PWM UNIT
PORTS
PATTERN GEN
SYNC SEP
SERVO CONTROL UNIT
ANALOG INPUT UNIT
SERIAL PORT
1050
59
68
48
69
CM
HP1 (HI-P)
HP2 (HI-S)
HSC (SP/LP)
HSC2
CROT
FFP
CSD-V
V-SEL
7082
BAS SYN
V-IMP
CAPSTAN SPEED
HEAD SPEED/POSITION
C-F/R CAPSTAN DIRECTION
IREC
DO (DOC-STOP)
RAI
WR-A1 (WR-AF)
IPBV (PB)
ENVC
LP/EP
FLY/ER
CSW
16 : 9
MOTOR DIRECTION
RESET
RST
14M1
CTL PROCESSING
7080-B SAA 1310
REF
ON/OFF
180°
V-SERASE
CTL R
W/R
CTL-R
RESET GENERATOR
TAPE START
TAPE END
FMET (FMES)
TRIV (FMEP)
SC28 (UAV2)
FBAS/YC
REFVHS
REFSVHS
SVHS-DET
AUTO ME
AUTO SEC
SC18
7080-E
8/17M
7/1502
4/1502
6/1502
2/1502
SPEED
C-F/R
DIRECTION
FG
CREV
Vcc
MOTOR DRIVE
COMMUTATION LOGIC
SPEED/POSITION
7095 TDA 5241
+5A1
3VB
2019
BACKUP
5/7019
+12VD
+12A
7018
5SW2
1015
4/7019
1014
7016
5A1
5A2
5D1
1012
1011
5SW1
5SW3
14M1
14A
8/17M
1509
33V
-28V
1010
FEIO
HEDI
5VSTBY
CSW
12A
14M
7088
STBY
HEST
HEST STBY
7074
19/1510
6/1510
CENTRAL CONTROLLER
80C1580 7035
1007
RESET
(CLOCK-S)CLK01
(DATA S)DATD1
EDIT START/STOP
WE
OE
PSEN
ADC
ALE
A8...16
7245 LATCH
7250 LPROM
7032 RAM
A0.../
D0 ... /
D CLK
SIN
SCLK
7025 EEPROM
EDIT1 / EDIT TRIGGER
EDIT2 / PREROLL
EC-CLK
EC-BUSY
BUS-INIT
SDA
SCL
(VT)
1/1511
1/1529
LANC-RES
7045
1046
16:9DC
CTL-R
V-IMP
EDIT CONTROLLER
RTS
CTS
FOR LANC/ FSE/ ME EDIT
7046
SCLK
1538
RS232
3/1529
2/1529
(VI)
1511 1520
MEI EDIT
5VSTBY
5D1
3VB
SYNCHRO/LANC EDIT
5/1529
6/1529
10/1529
16/1529
18/1510
12/1510
14/1510
13/1510,5/1529
11/1510,1529
EC-RESET
SCART CONTROL
7060 TMP87C07
VDD
RESET
1062 32k
5STBY
DISPLAY CONTROLLER
INT2
INT0
INT1

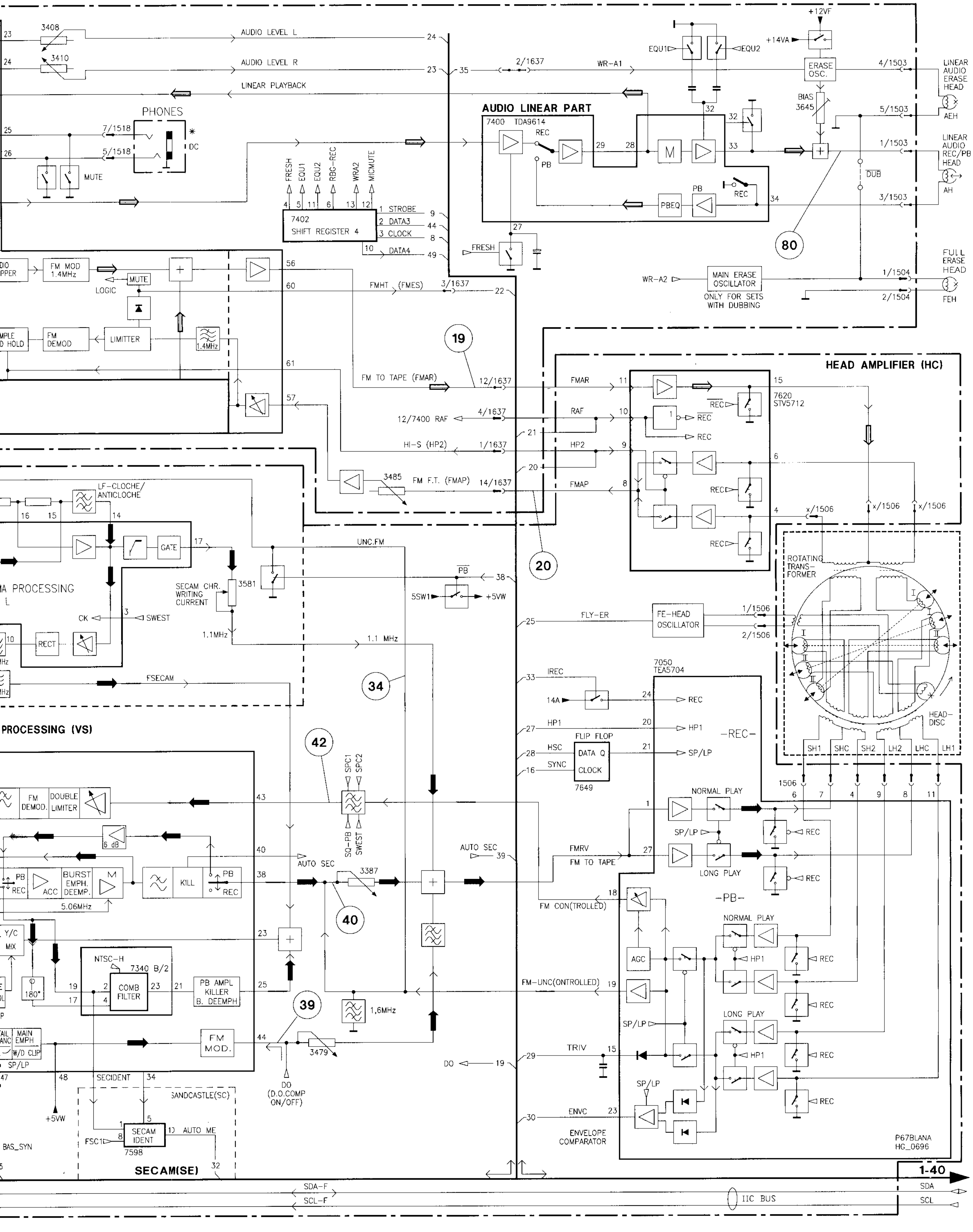

CAPSTAN MOTOR UNIT
CAPSTAN MOTOR
HALL IC
MOTOR DRIVE
Vcc
U
V
W
COMMU-TATION LOGIC
H1+
H1−
H2+
H2−
H3+
H3−
CREV
8/17M
7/1502
4/1502
6/1502
2/1502
7080-E
SPEED
DIRECTION
C-F/R
FG
48
59
68
69
ONTROLLER
91C642
PU CORE
1050
PWM UNIT
PATTERN GEN
SYNC SEP
SERVO CONTROL UNIT
PORTS
25 CM
24
22 HP1 (HI-P)
20 HP2 (HI-S)
18 FSC (SP/LP)
36 FSC2
19 CROT
STP
OSD V
V-SEL
7082
BAS. SYN
V-MP
13 CAPSTAN SPEED
12 HEAD SPEED/POSITION
34 C-F/R CAPSTAN DIRECTION
61 REC
30 DO (DOC-STOP)
31 RAF
60 WR A1 (WR-AF)
5 IPBV (PB)
7 ENVC
59 LP/EP
27 FLY/ER
CSW
HEAD-DISC MOTOR
14M1
1501
7095 TDA 5241
18 HMO1
3 HMO2
16 HMO3
SPEED/POSITION
POS
COIL
POWER SUPPLY (PS)
1509
STBY
HOT CIRCUIT
HEST
5050
FILTER
1010 .25A
MAINS PLUG
+5A1
3VB
BACKUP
2019
33V
−28V
1010
HELO
HEHI
5VSTBY
5/7019
+12VD
−12A
7018
CSW
12A
14M
14A
8/17M
55W2
14M1
1015
1014
4/7019
7016
5A1
5A2
5D1
1012
1011
5SW1
5SW3
7088
OUTPUT
CUR.SENSE
Vcc
7020
FEEDBACK
HEST STBY
7074
7070
19/1510
6/1510
(VI)
1/1511
1/1529
LANC RES
7045
1046
ADC
EDIT CONTROLLER
16:9DC
CTLR
V-IMP
RTS
CTS
SCLK
SIN
FOR LANC/FSE/ME EDIT
7046
1538
RS232
PROM
7052
RAM
3/1529
2/1529
1511 1520
5VSTBY
5D1
3VB
MEI EDIT
SYNCHRO/LANC EDIT
/ EDIT TRIGGER
/ PREROLL
CLK
BUSY
-INIT
5/1529
6/1529
10/1529
16/1529
18/1510
12/1510
14/1510
13/1510,5/1529
11/1510,1529
FC-RESET
SCART CONTROL
DISPLAY CONTROL (DC)
7060
TMP87CC70
VDD
RESET
1060
STBY
HEST
HEHI
HELO
FLUORESCENT DISPLAY
1062 32k
DISPLAY CONTROLLER
KEYBOARD MATRIX
SHUTTLE
JOG
5STBY
INT2
INT0
INT1
IR-RECEIVER
7035

p_blcigi
HG_0696

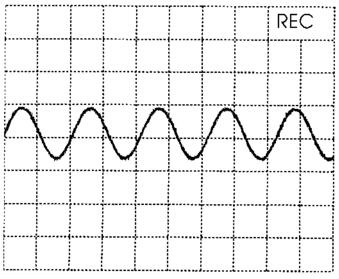
Block Diagram Analog VHS


I/O BOARD
INPUT / OUTPUT (IO)
AUDIO (AU)
SCART-1 1916
(DECODER) SCART-2 1917
L-TH-OFF
RED
GREEN
BLUE
MUTE
LINE OUT L
LINE OUT R
E2 LEFT OUT
E2 RIGHT OUT
E1 LEFT OUT
E1 RIGHT OUT
AUDIO MOD
74
17
DISPLAY CONTROL (DC)
E3
SC18
E1 VIDEO OUT
E1 VIDEO IN
E2 VIDEO IN
E2 VIDEO OUT
SC28
E2 LEFT IN
E2 RIGHT IN
E1 LEFT IN
E1 RIGHT IN
S1-PIN10
7000 SHIFT REG. 3
VT-REC
L-THOFF
CLOCK
STROBE
DATA2
DATA3
SC28 UAV2
SCART CONTROL
13
SDA
SCL
IIC BUS
FE BOARD FRONT END (FE)
SECAM
7000 SHIFT REGISTER 2
DATA1
* ONLY FOR MULTISTANDARD
A1
A2
9/7050
7/7050
SW1
7200
NICAM DECODER
PAL I
FEL
FER
7050 AUDIO PART
6.26/ 5.74MHz
5.5/6MHz
FM2 DEMOD
FM1 DEMOD
AM DEMOD
7100
STEREO/ DUAL SOUND DECODER
NOT FOR PAL I
AUDIO-L
AUDIO-R
FE_MONO
16
FOR BG-ONLY SETS
(CC)
VPS/ PDC
MOTHER BOARD (VP)
VIDEOTEXT (VT)
7140 TXT DECODER
RGB
YC
BLANK
MOBO
(CC)
OSD-V
CVBS_VT
E1 OUT
E2 OUT
CVBS
18
17
MOTH
CLO
STR
DATA
AUDIO MOD
CVBS MOD
1125
7MHz
+14A
+12FE
ONLY PAL I
MODULATOR 1750
5.5/6MHz AUDIO FM MOD
VIDEO CLAMP
AERIAL IN
AERIAL OUT
MOD
CONTROL
PLL
VHF
MIX
UHF
IF IN
1170
SW1
TUNAGC
7050 VIDEO PART TDA 9813/9814
5,85MHz
AGC DET.
AFC DET.
STANDARD
5,5MHz
6,5MHz*
EF
SW1
7150 *
15
E1 IN
E2 IN
7770
MOBO
FOLLOW TV
FOLLOWME
CVBS MOD
MOTHER BOARD TUNER MODULATOR (TM)
RECORD VIDEO
RECORD AUDIO
PLAYBACK VIDEO
PLAYBACK AUDIO
*OPTION


AUDIO (AU)
MUTE
74
73
7400 TDA9614 FM PART
RAF
LOGIC
SDA SCL
E2 LEFT OUT
E2 RIGHT OUT
E1 LEFT OUT
E1 RIGHT OUT
AUDIO MOD
TUNER
E1
E3
E2
3408
3410
17
DISPLAY CONTROL (DC)
* DC
MICRO
3/1518
MICMUTE
LINE IN L
E3
9/1518
11/1518
LINE IN R
PB.
REC
20kHz
NOISE REDUCTION
AUDIO CLIPPER
FM MOD 1.4MHz
SAMPLE AND HOLD
FM DEMOD
- LEFT CHANNEL -
- RIGHT CHANNEL -
SDA
SCL
SECAM (SE)
7575 TDA4722
1.07MHz
:4
E-E
CHROMA PROCESSING SECAM L
CK
HF-ANTI CLOCHE
x2
2.14MHz
RECT
HF-CLOCHE
4.3MHz
MOTHER BOARD
CLOCK
STROBE
DATA 4
DATA 5
16/137
7380 SHIFT REGISTER 5
7370 SHIFT REGISTER 6
SQ-PB
TRICK
SWEST
SPC 2
SPC 1
NTSC-PAL
SW
LP-TRICK
NTSC
SEC-E
PIC_CTL
VPS/PDC
MOTHER BOARD (VP)
(CC)
VIDEOTEXT (VT)
11/1528
7140 TXT DECODER
RGB YC
1/1527
2/1527
4/1527
BLANK
2/1918
4/1918
YvT
CvT
MOBO
(CC)
7/1528
2/1528
OSD-V
INPUT/OUTPUT (IO)
BLANK VT-REC
14/1638 CVBS_VT
E1 OUT
E2 OUT
CVBS
7/1638
7100
TXT INSERT
BLANK
18
1125
7MHz
E1 IN
E2 IN
7770
LOGIC
SDA SCL
CVS
2/1514
E3 IN DC
15
5/1624
5/1639
MOBO
19/1637
20/1637
*7690
OSD
10/1638
12/1638
37
CS SCLK SIN OSD-V
54 52 53 26
5,85MHz
5,5MHz
6,5MHz
SW1
EF
7150
AFC DET.
STANDARD
3/1624
14/7000
7//000
SDA
SCL
VIDEO SIGNAL PROCESSING (VS)
7320 LA7447
FSC1
SW
COLOUR KILLER
4.43MHz
VXO XO
LP/EP
NTSC-PAL
HSC2
627kHz
PHASE SHIFTER
321xfH PLL
4.43 MHz
5.06MHz
CROT
SEC-E
SYNC
FFP
MAIN
FM DEMOD.
DOUBLE LIMITER
PB REC
ACC
BURST EMPH. DEEMP.
W/D CLIP
Y/C MIX
PICTURE CONTROL
NL
SHP
E-E
180°
REC PB 3.5MHz
D.O.COMP/ VERT. EMPH
DETAIL ENHANC
MAIN EMPH
NL W/D CLIP
SP/LP
AGC DET
SYNC SEP
7340A/2
64µs CCD
SVHS-DET
BAS_SYN
+5VW
CSYNC
LP/EP FFP CROT HSC2
14 18 15 42
16
17
85
LOW POWER IIC BUS

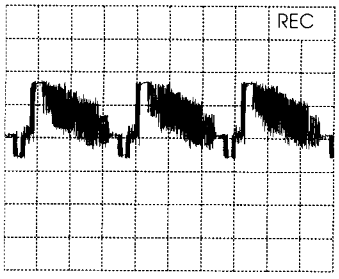

AUDIO LEVEL L
AUDIO LEVEL R
LINEAR PLAYBACK
PHONES
MUTE
7402
SHIFT REGISTER 4
FRESH
EQU1
EQU2
RBG-REC
WRA2
MICMUTE
STROBE
DATA3
CLOCK
DATA4
AUDIO LINEAR PART
7400 TDA9614
REC
PB
PBEQ
+12VF
+14VA
EQU1
EQU2
ERASE OSC.
BIAS 3645
DUB
LINEAR AUDIO ERASE HEAD
AEH
LINEAR AUDIO REC/PB HEAD
AH
FULL ERASE HEAD
FEH
WR-A1
WR-A2
MAIN ERASE OSCILLATOR
ONLY FOR SETS WITH DUBBING
FM MOD 1.4MHz
MUTE
LOGIC
FM DEMOD
LIMITTER
1.4MHz
FMHT (FMES)
FM TO TAPE (FMAR)
12/7400 RAF
HI-S (HP2)
FM F.T. (FMAP)
HEAD AMPLIFIER (HC)
FMAR
RAF
HP2
FMAP
7620 STV5712
ROTATING TRANS-FORMER
HEAD-DISC
SH1
SHC
SH2
LH2
LHC
LH1
LF-CLOCHE/ ANTICLOCHE
GATE
SECAM CHR. WRITING CURRENT
3581
1.1MHz
1.1 MHz
UNC.FM
PB
5SW1
+5VW
CK
SWEST
RECT
FSECAM
FLY-ER
FE-HEAD OSCILLATOR
7050 TEA5704
IREC
14A
HP1
HSC
SYNC
FLIP FLOP
DATA Q
CLOCK
7649
SP/LP
-REC-
PROCESSING (VS)
FM DEMOD.
DOUBLE LIMITER
6 dB
SPC1
SPC2
SQ-PB
SWEST
AUTO SEC
BURST EMPH. DEEMP.
ACC
KILL
5.06MHz
3387
Y/C MIX
180°
NTSC-H
7340 B/2
COMB FILTER
PB AMPL KILLER B. DEEMPH
1,6MHz
FM MOD.
3479
DO
DO (D.O.COMP ON/OFF)
SECIDENT
SANDCASTLE(SC)
SECAM IDENT
7598
FSC1
AUTO ME
SECAM(SE)
+5VW
BAS_SYN
NORMAL PLAY
LONG PLAY
FMRV
FM TO TAPE
FM CON(TROLLED)
FM-UNC(ONTROLLED)
-PB-
AGC
TRIV
ENVC
ENVELOPE COMPARATOR
P67BLANA HG_0696
1-40
SDA-F
SCL-F
IIC BUS
SDA
SCL
19
20
34
39
40
42
80

⑬



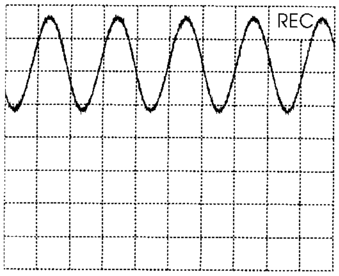
A: DC, 1 V/Div, 500us/Div
IC 7100 Pin 11/12

⑮



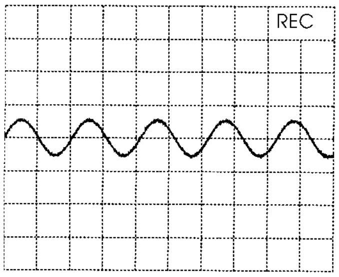
A: DC, 500mV/Div, 20us/Div
Connector 1624 Pin 5

⑯



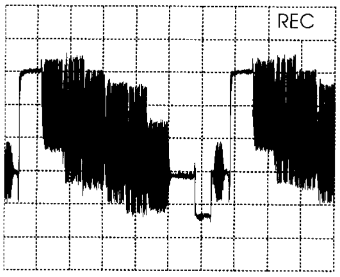
A: DC, 500mV/Div, 500us/Div
Connector 1625 Pin 9

⑰



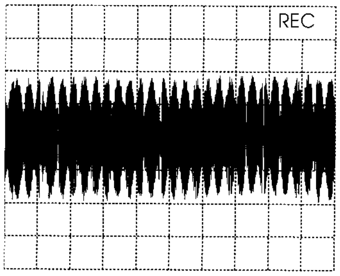
A: DC, 1 V/Div, 500us/Div
Connector 1637 Pin 5

⑱



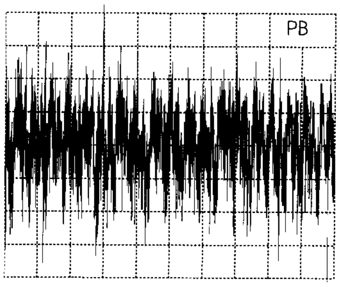
A: DC, 500mV/Div, 10us/Div
Connector 1638 Pin 7

⑲



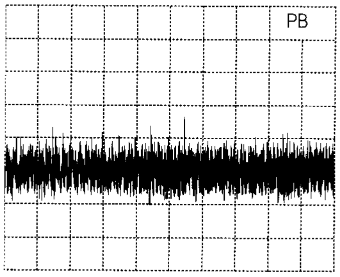
A: DC, 100mV/Div, 1ms/Div
Connector 1637 Pin 12

⑳



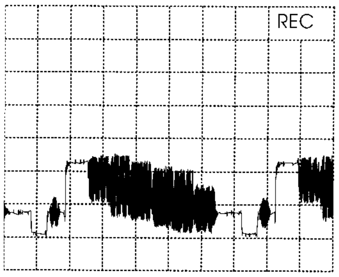
A: AC, 200mV/Div, 1ms/Div
Connector 1637 Pin 14

㉞



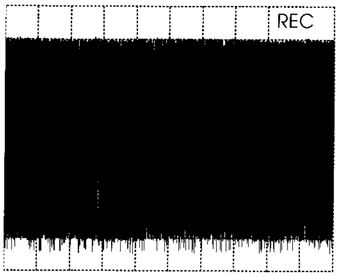
A: DC, 500mV/Div, 1us/Div
IC 7600 Pin 19

㊲



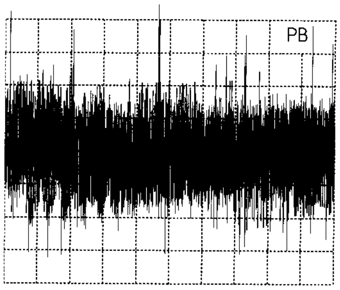
A: DC, 500mV/Div, 10us/Div
Connector 1638 Pin 12

㊴



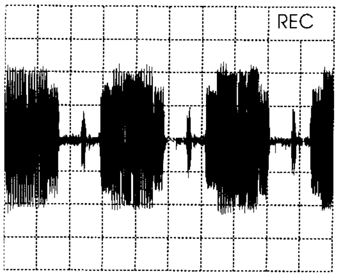
A: AC, 200mV/Div, 1ms/Div
IC 7320 Pin 44

㊵



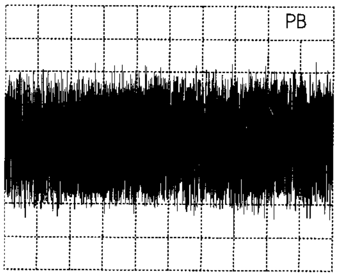
A: AC, 200mV/Div, 20us/Div
IC 7320 Pin 38

㊵



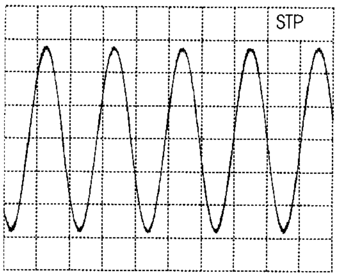
A: AC, 100mV/Div, 20us/Div
IC 7320 Pin 38

㊷



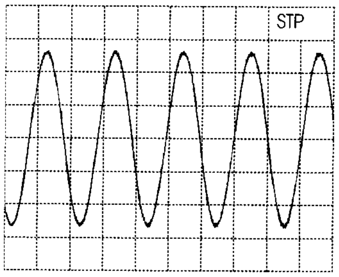
A: AC, 200mV/Div, 20us/Div
IC 7320 Pin 43

(73)

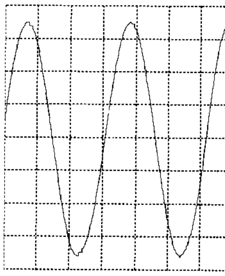


A: AC, 200mV/Div, 500us/Div
IC 7400 Pin 19/20

(74)



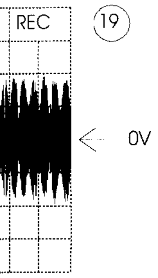
A: AC, 200mV/Div, 500us/Div
IC 7400 Pin 21/22

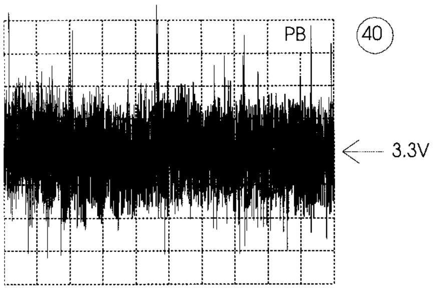


A: DC, 5 V/Div, 5us/Div
Connector 1503 Pin 1

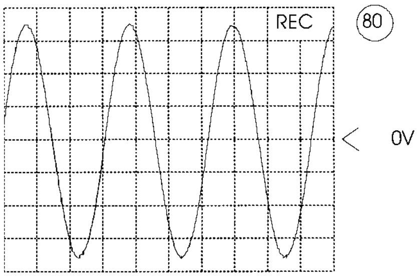
Interconnections:

PS page 3-27	SE
FE page 3-29/31	HC
TM page 3-34	VS

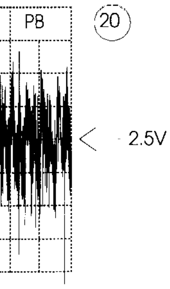


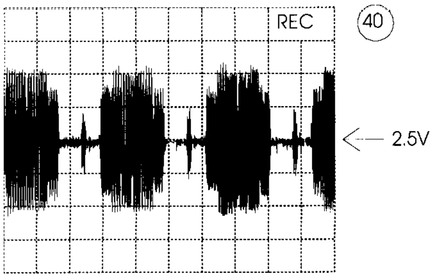


A: AC, 200mV/Div, 20us/Div
IC 7320 Pin 38

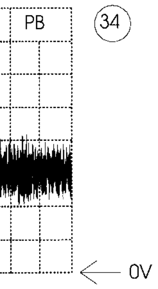


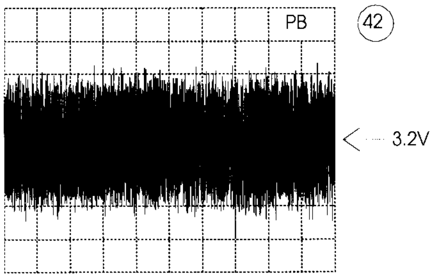
A: DC, 5 V/Div, 5us/Div
Connector 1503 Pin 1



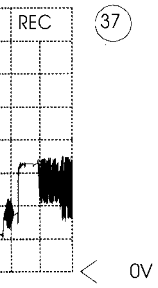


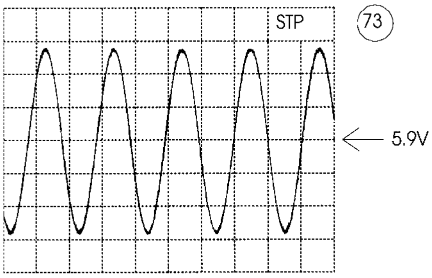
A: AC, 100mV/Div, 20us/Div
IC 7320 Pin 38



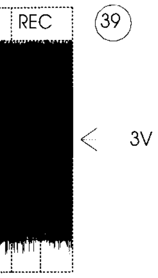


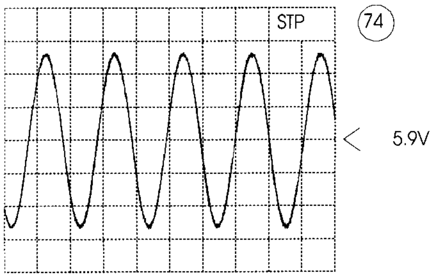
A: AC, 200mV/Div, 20us/Div
IC 7320 Pin 43





A: AC, 200mV/Div, 500us/Div
IC 7400 Pin 19/20





A: AC, 200mV/Div, 500us/Div
IC 7400 Pin 21/22

Interconnections:

PS page 3-27	SE page 3-35	DE page 3-38	VP page 3-41	VT page 3-46	SF page 3-53
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP page 3-54
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC page 3-57...

Power Supply PSM

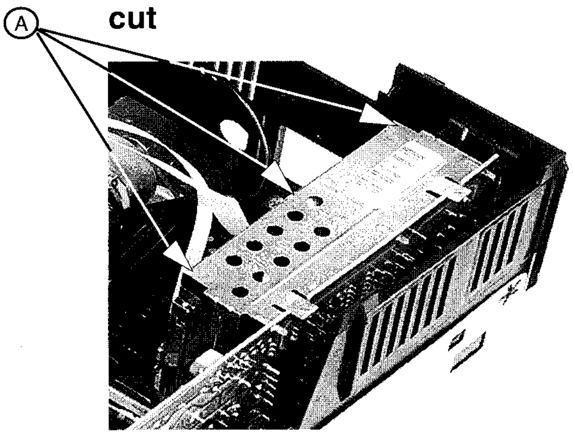


Fig.1

(GB) How to remove the power supply shield

Cut the three slicing plates **A**, see Fig. 1.

(D) Wie entferne ich die Abdeckung des Power Supply

Die 3 Stege **A** (mittels Seitenschneider) durchtrennen, siehe Fig. 1.

(NL) Verwijderen afscherming voedingseenheid

Knip de drie lipjes **A** (m.b.v. zijkniptang) door, zie fig. 1.

(F) Comment retirer le blindage de l'alimentation

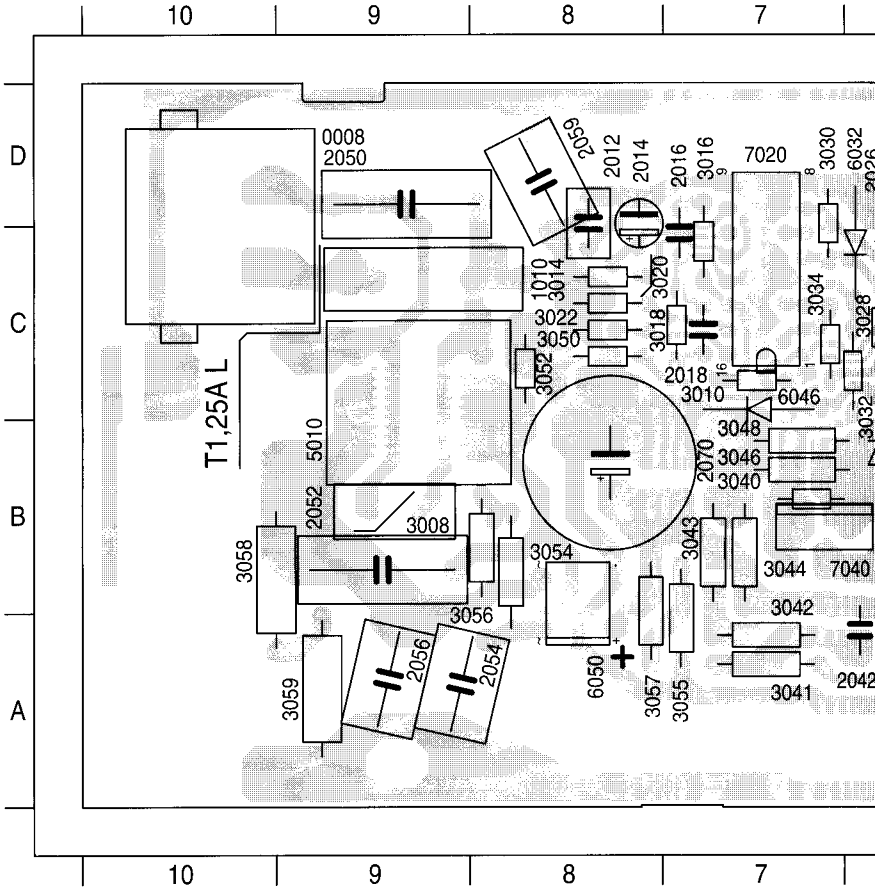
Coupez les trois ergots métalliques **A**, voir Fig. 1.

(I) Come rimuovere la schermatura dell'alimentatore

Tagliare i tre punti di connesione **A**, vedere fig. 1.

(E) Como retirar el apantallamiento de la fuente de alimentación

Cortar las tres pestañas **A**, ver Fig. 1.


10
9
8
7
D
C
B
A
0008
2050
2059
2012
2014
2016
3016
7020
3030
6032
1010
3014
3022
3050
3020
3018
3034
3028
2018
3010
6046
3052
T1,25A L
5010
3048
3046
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2070
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2052
3008
3058
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3043
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3057
3055
3041
2042

0008	D 10	2032	D 6	2062	A 4	2081	B 3	3008	B 9	3028	C 6	3046	B 7
1010	C 9	2036	C 6	2064	A 2	2084	B 3	3010	C 7	3030	D 6	3048	B 7
1509	A 2	2042	A 6	2068	A 3	2085	B 1	3012	D 6	3032	C 6	3050	C 8
2012	D 8	2050	D 9	2069	A 4	2088	B 3	3014	C 8	3034	C 6	3052	C 8
2014	D 7	2052	B 9	2070	B 8	2090	B 3	3016	C 7	3040	B 7	3054	B 8
2016	C 7	2054	A 8	2074	D 4	2092	B 2	3018	C 7	3041	A 7	3055	B 7
2018	C 7	2056	A 9	2076	C 4	2096	C 3	3020	C 8	3042	A 7	3056	B 8
2026	C 6	2059	D 8	2079	B 2	2098	C 2	3022	C 8	3043	B 7	3057	B 7
2030	D 5	2060	A 3	2080	C 3	2099	C 2	3026	C 6	3044	B 7	3058	B 9

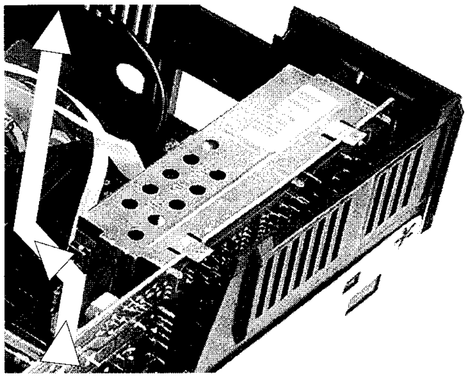


Fig. 2

(GB) Lift-up the shield cover about 3mm, disengage it and pull it out (see Fig. 2).
Note: To mount the shield cover please proceed in the reverse order.

(D) Die Abdeckung an der Oberseite 3 mm anheben und nach innen abziehen, siehe Fig. 2. Die Montage erfolgt in umgekehrter Reihenfolge.

(NL) Til het afschermingsdeksel aan de bovenzijde 3 mm op, draai deze naar binnen, zie fig. 2. Nu kan de afscherming verwijderd worden.
Opm: De montage van de afscherming geschiedt in omgekeerde volgorde.

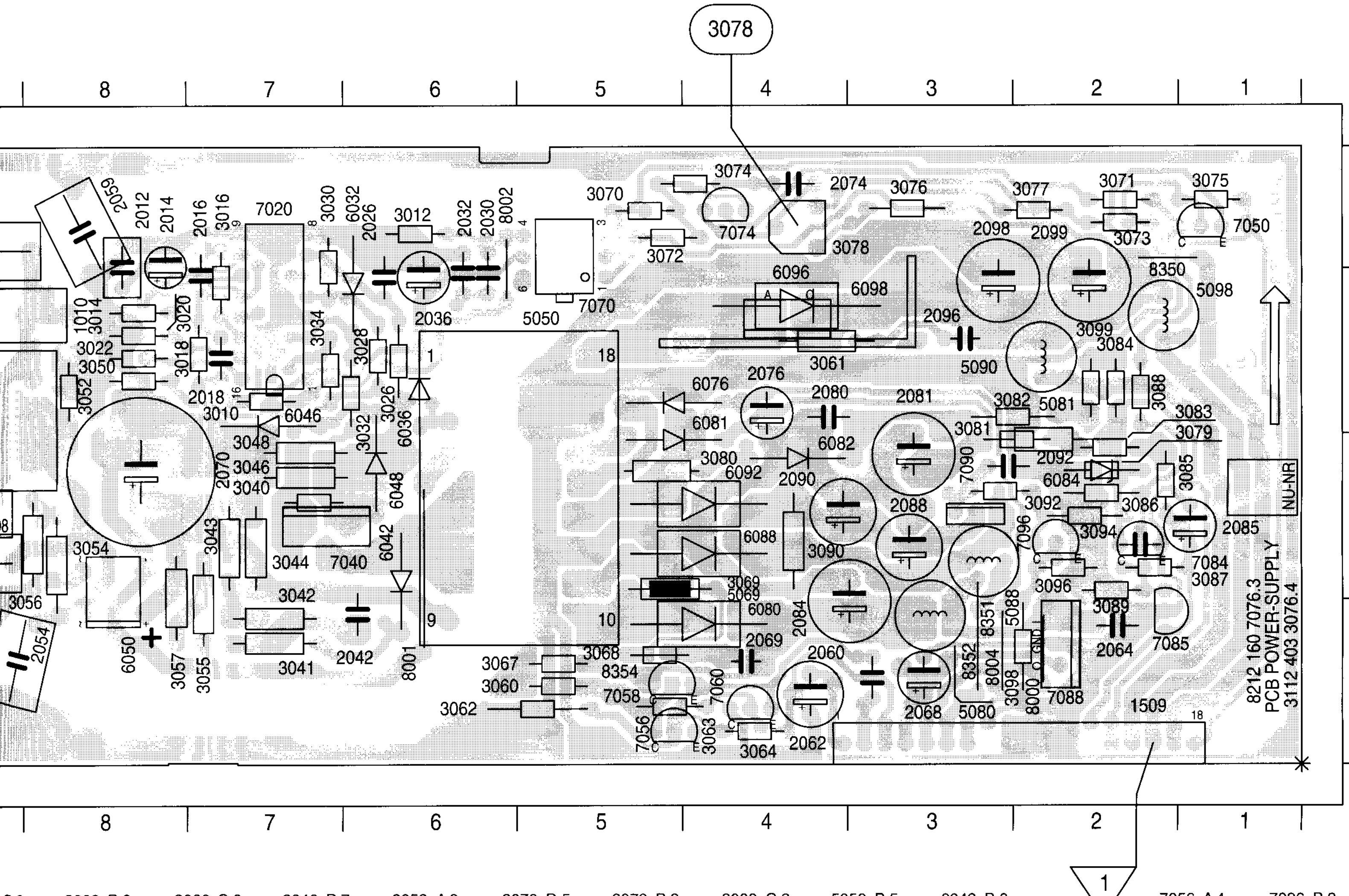
(F) Soulevez le blindage de 3mm vers le haut, dégagez-le vers la gauche et retirez-le (voir Fig. 2).
Pour remettre en place le blindage, procédez dans l'ordrte inverse.

(I) Sollevare il coperchio dalla parte superiore di circa 3 mm e ruotarlo per toglierlo, vedere fig. 2.
Ora la schermatura può essere tolta.
Nota: Per rimontare la schermatura, procedere in ordine inverso.

(E) Levantar la tapa de pantalla 3 mm, girarla y tirar de ella hacia arriba, ver Fig. 2.
Ahora el apantallamiento puede ser retirado.
Nota: Para montar el apantallamiento proceder en el orden inverso.

(GB)

After mo
the splic
see Fig.



B 3	3008 B 9	3028 C 6	3046 B 7	3059 A 9	3070 D 5	3079 B 2	3088 C 2	5050 B 5	6042 B 6		7056 A 4	7096 B 2
B 3	3010 C 7	3030 D 6	3048 B 7	3060 A 5	3071 D 2	3080 B 4	3089 B 2	5069 B 4	6046 C 7		7058 A 4	8000 A 2
B 1	3012 D 6	3032 C 6	3050 C 8	3061 C 3	3072 D 4	3081 B 2	3090 B 4	5080 A 3	6048 B 6	6088 B 4	7060 A 4	8001 B 6
B 3	3014 C 8	3034 C 6	3052 C 8	3062 A 5	3073 D 2	3082 C 2	3092 B 2	5081 B 2	6050 B 8	6092 B 4	7070 D 5	8002 D 5
B 3	3016 C 7	3040 B 7	3054 B 8	3063 A 4	3074 D 4	3083 B 2	3094 B 2	5088 B 2	6076 C 4	6096 C 4	7074 D 4	8004 A 2
B 2	3018 C 7	3041 A 7	3055 B 7	3064 A 4	3075 D 1	3084 C 2	3096 B 2	5090 C 2	6080 A 4	6098 C 4	7084 B 1	8350 D 1
C 3	3020 C 8	3042 A 7	3056 B 8	3067 A 5	3076 D 3	3085 B 1	3098 A 2	5098 C 1	6081 B 4	7020 C 7	7085 A 1	8351 A 2
C 2	3022 C 8	3043 B 7	3057 B 7	3068 A 4	3077 D 2	3086 B 2	3099 C 2	6032 C 6	6082 B 4	7040 B 6	7088 A 2	8352 A 2
C 2	3026 C 6	3044 B 7	3058 B 9	3069 B 4	3078 D 4	3087 B 1	5010 C 9	6036 C 6	6084 B 2	7050 D 1	7090 B 3	8354 A 4

m anheben und nach innen
n umgekehrter Reihenfolge.

venzijde 3 mm op, draai
erming verwijderd worden.
hiedt in omgekeerde

haut, dégagez-le vers la

z dans l'ordrte inverse.

eriore di circa 3 mm e

re in ordine inverso.

arla y tirar de ella hacia

der en el orden inverso.

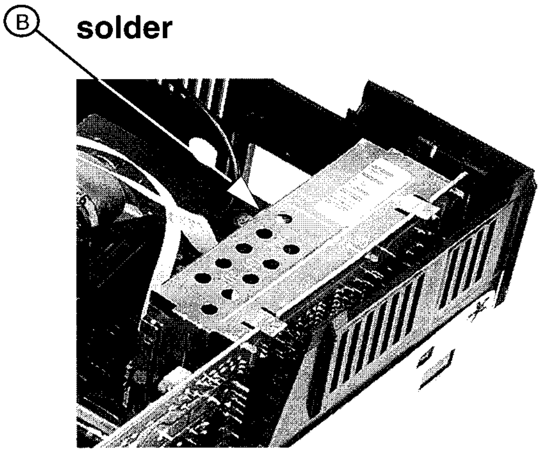


Fig.3

GB Important:

After mounting the shield plate it is indispensable that the splicing plate B is resoldered for safety reasons, see Fig. 3.

D Achtung:

Nach Montage des Deckels muß der Steg B unbedingt aus Sicherheitsgründen mit dem Gehäuse verlötet werden, siehe Fig. 3

NL Belangrijk:

Na montage van de afschermplaat is het noodzakelijk dat het lipje B om veiligheidsredenen weer aan het huis gesoldeerd wordt, zie fig. 3.

F Important:

Une fois le blindage remis en place, il est indispensable de resouder l'ergot B pour des raisons de sécurité. voir Fig. 3.

I Importante:

Dopo aver montato la schermatura è indispensabile per ragioni di sicurezza saldare accuratamente la piastra B, vedere fig. 3.

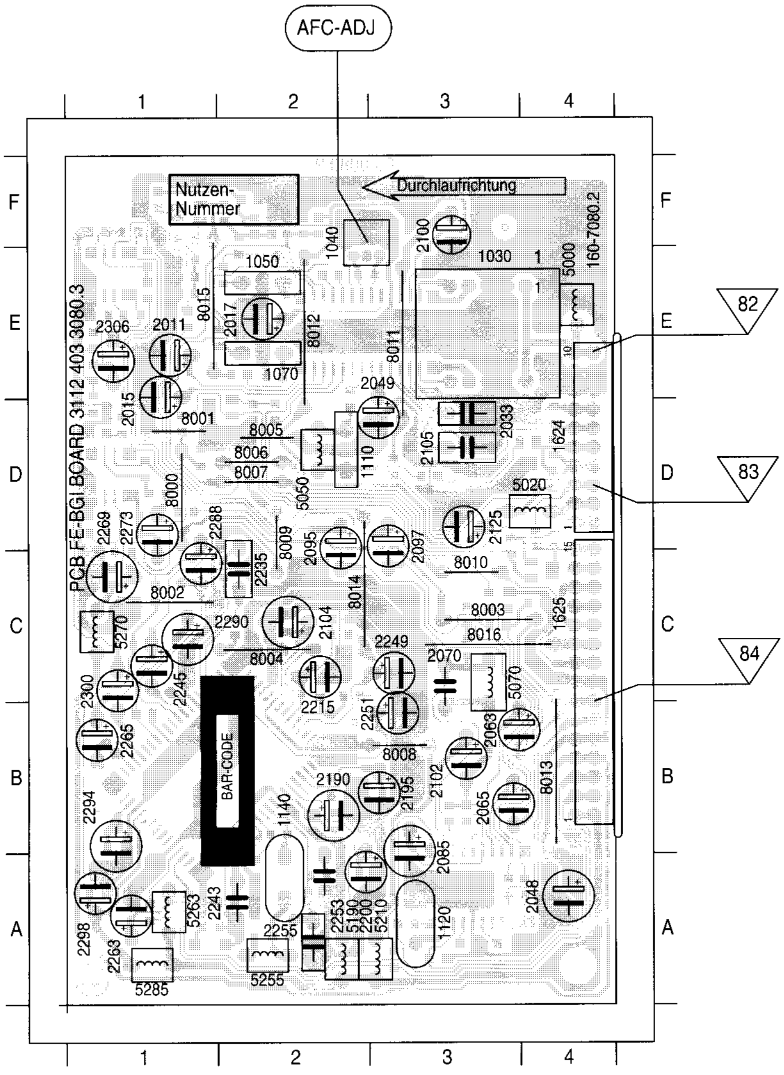
E Importante:

Despues de montar el apantallamiento es indispensable que la pestaña B quede soldada por razones de seguridad, ver Fig. 3.

Front End Board PAL B/G/I

Conventional Assembly

View of components side

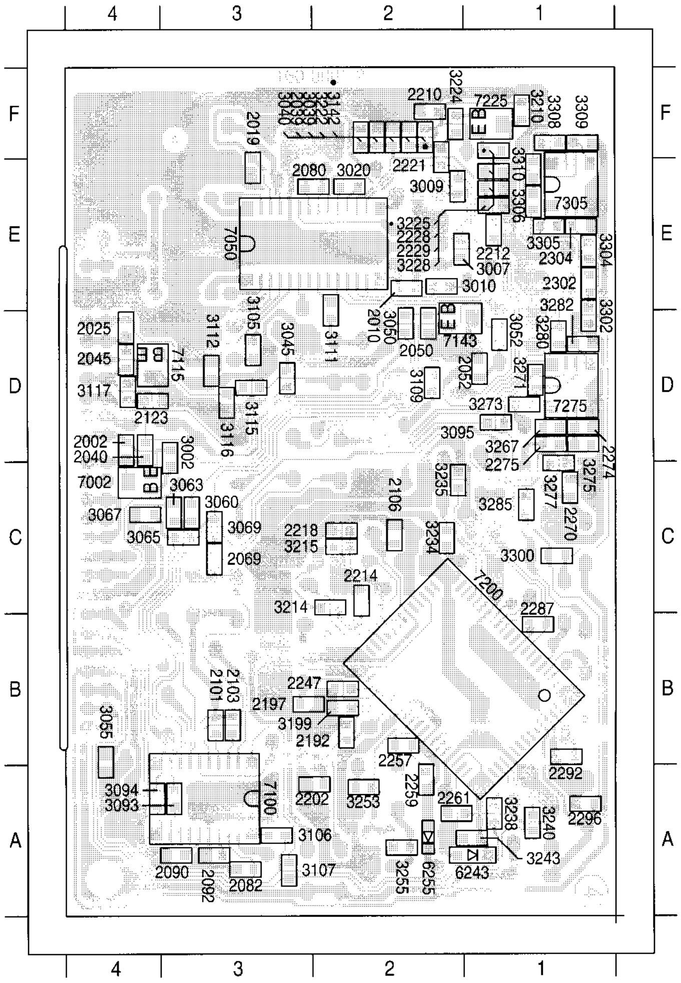

AFC-ADJ
1
2
3
4
F
E
D
C
B
A
82
83
84
Nutzen-
Nummer
Durchlaufrichtung
160-7080.2
PCB FE-BGI BOARD 3112 403 3080.3
1040
2100
1030
5000
1050
1070
8015
2017
8012
8011
2306
2011
2015
8001
2049
2033
2105
1624
8005
8006
8007
1110
5050
8000
5020
2125
2269
2273
2288
8009
2095
2097
8010
2235
8002
8014
8003
1625
5270
2290
2104
8016
8004
2249
2070
2300
2245
2215
5070
2251
2063
2265
BAR-CODE
8008
2190
2195
2102
8013
2294
1140
2065
2085
2048
2298
2263
5263
2243
2255
2253
5190
5200
5210
1120
5285
5255

XX = Testpoint   XXX = Adjustment

0902	B 2	2049	D 3	2215	C 2	2298	A 1	8002	C 1
1030	E 3	2063	B 4	2235	C 2	2300	C 1	8003	C 3
1040	F 3	2065	B 3	2243	A 2	2306	E 1	8004	C 2
1050	E 2	2070	C 3	2245	C 1	5000	E 4	8005	D 2
1070	E 2	2085	B 3	2249	C 3	5020	D 4	8006	D 2
1110	D 2	2095	D 2	2251	B 3	5050	D 2	8007	D 2
1120	A 3	2097	D 3	2253	A 2	5070	C 3	8008	B 3
1140	A 2	2100	F 3	2255	A 2	5190	A 2	8009	D 2
1624	D 4	2102	B 3	2263	A 1	5210	A 3	8010	C 3
1625	C 4	2104	C 2	2265	B 1	5255	A 2	8011	E 3
2011	E 1	2105	D 3	2269	C 1	5263	A 1	8012	E 2
2015	E 1	2125	D 3	2273	D 1	5270	C 1	8013	B 4
2017	E 2	2190	B 2	2288	C 1	5285	A 1	8014	C 2
2033	D 3	2195	B 3	2290	C 1	8000	D 1	8015	E 2
2048	A 4	2200	A 3	2294	B 1	8001	D 1	8016	C 3

SMD Assembly

View of solder side


4
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F
E
D
C
B
A
7050
7100
7115
7143
7200
7225
7275
7305
7002
2210
3224
3210
3308
3309
2019
2080
3020
2221
3009
3310
3306
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2228
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3228
2212
3007
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2304
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3010
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3271
3109
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3273
3095
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2275
2274
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3300
2025
2045
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2123
3112
3105
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3111
3115
3116
2002
2040
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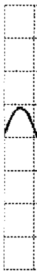
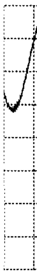
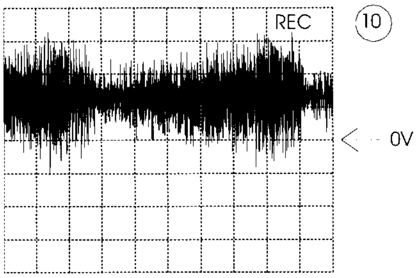
2218
3215
2106
3235
3234
2214
3214
2287
2103
2101
2247
2197
3199
2192
3055
2257
2292
3094
3093
2202
3253
2259
2261
3238
3240
2296
3106
3243
6243
6255
3255
2090
2092
2082
3107

2002	D 4
2010	E 2
2019	E 3
2025	D 4
2039	F 2
2040	D 4
2045	D 4
2050	D 2
2052	D 1
2069	C 3
2080	E 3
2082	A 3
2090	A 3
2092	A 3
2101	B 3
2103	B 3
2106	C 2
2123	D 4
2192	B 2
2197	B 3
2202	A 3
2210	F 2
2212	E 1
2214	C 2
2218	C 2
2221	F 2
2228	E 1
2229	E 1
2247	B 2
2257	B 2
2259	A 2
2261	A 2
2270	C 1
2274	D 1
2275	D 1
2287	B 1
2292	B 1
2296	A 1
2302	E 1
2304	E 1
3002	D 3
3007	E 2
3009	E 2
3010	E 2
3020	E 2
3039	F 2
3040	F 2
3045	D 3
3050	D 2
3052	D 1
3055	B 4
3060	C 3
3063	C 3
3065	C 3
3067	C 4
3069	C 3
3093	A 3
3094	A 4
3095	D 1
3105	D 3
3106	A 3
3107	A 3
3109	D 2
3111	E 2
3112	D 3
3115	D 3
3116	D 3
3117	D 4
3142	F 2
3199	B 2
3210	F 1
3214	C 2
3215	C 2
3222	F 2
3224	F 2
3225	F 1
3228	E 1
3234	C 2
3235	C 2
3238	A 1
3240	A 1
3243	A 1
3253	A 2
3255	A 2
3267	D 1
3271	D 1
3273	D 1
3275	D 1
3277	D 1
3280	D 1
3282	D 1
3285	C 1
3300	C 1
3302	D 1
3304	E 1
3305	E 1
3306	E 1
3308	F 1
3309	F 1
3310	E 1
6243	A 1
6255	A 2
7002	C 4
7050	E 3
7100	A 3
7115	D 4
7143	D 2
7200	B 2
7225	F 1
7275	D 1
7305	E 1

A: D
Cor

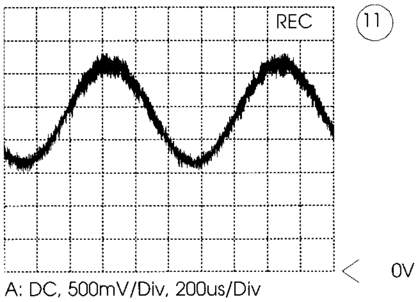

A: D
IC 7


A: D
Cor



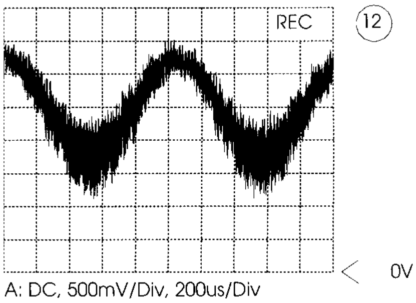
⑩

A: DC, 500mV/Div, 10us/Div
Connector 1624 Pin 10



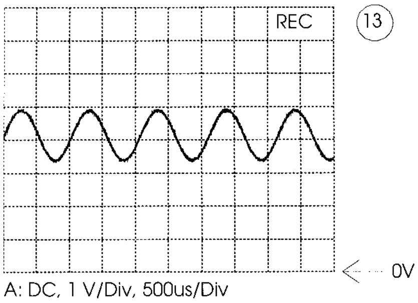
⑪

A: DC, 500mV/Div, 200us/Div
IC 7050 Pin 10



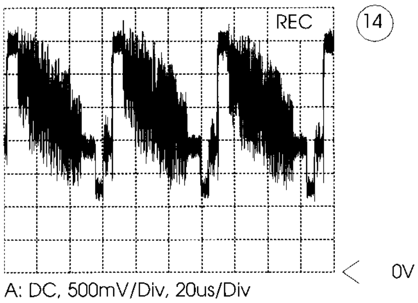
⑫

A: DC, 500mV/Div, 200us/Div
IC 7050 Pin 11



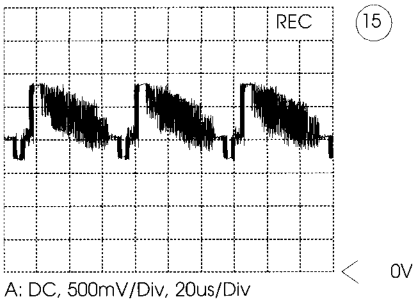
⑬

A: DC, 1 V/Div, 500us/Div
IC 7100 Pin 11/12



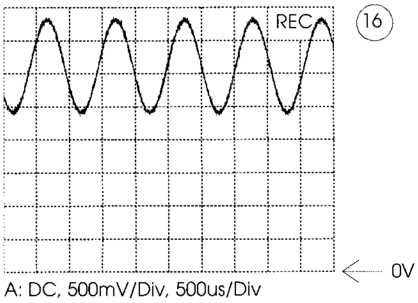
⑭

A: DC, 500mV/Div, 20us/Div
IC 7050 Pin 8



⑮

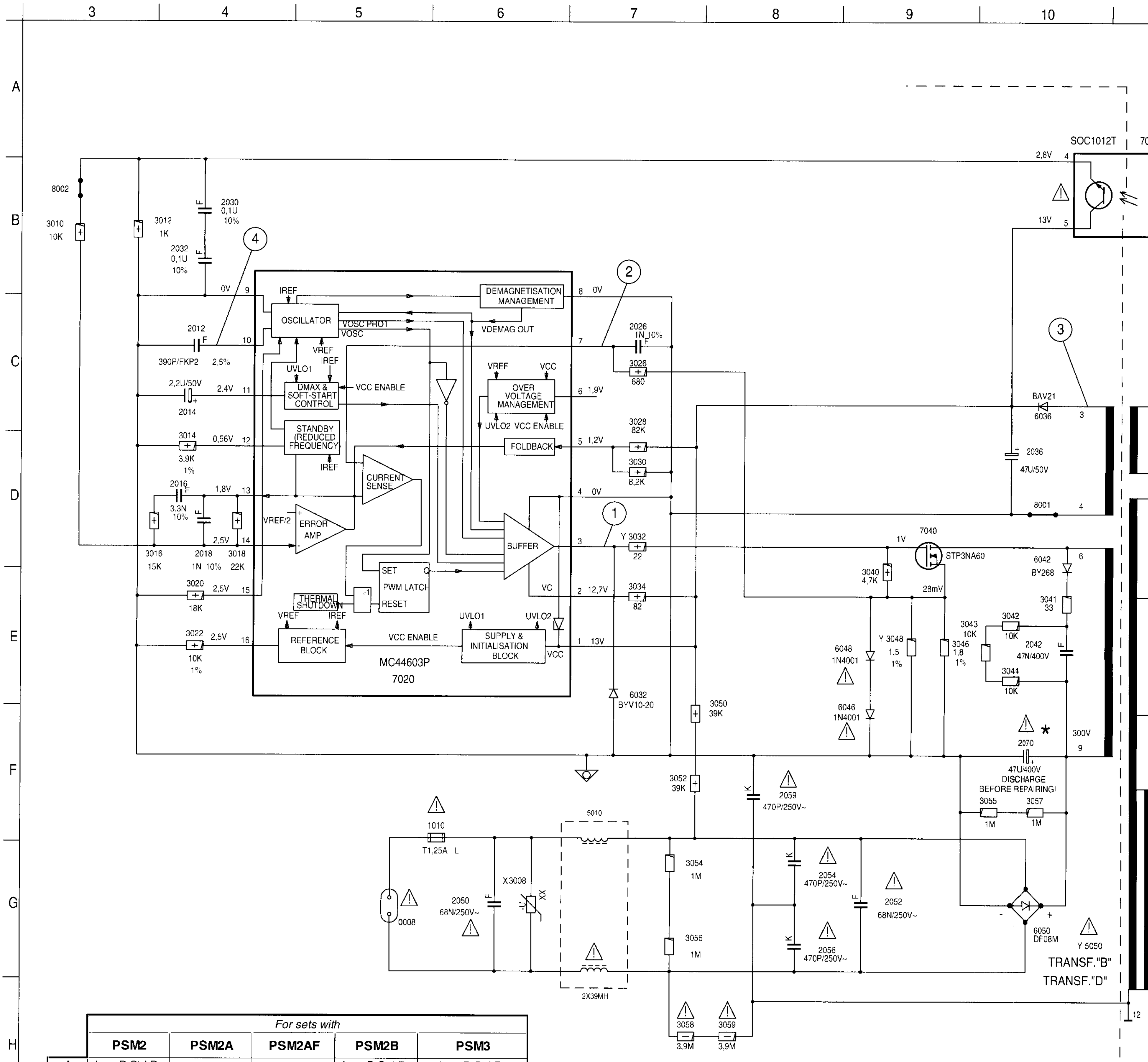
A: DC, 500mV/Div, 20us/Div
Connector 1624 Pin 5



⑯

A: DC, 500mV/Div, 500us/Div
Connector 1625 Pin 9

Power Supply PSM (PS)


3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
H
8002
3010
10K
3012
1K
2030
0,1U
10%
2032
0,1U
10%
4
2
3
1
0V
9
IREF
OSCILLATOR
VOSC PROT
VOSC
DEMAGNETISATION MANAGEMENT
8
0V
VDEMAG OUT
2012
390P/FKP2
2,5%
10
VREF
IREF
UVLO1
2,2U/50V
2,4V
11
2014
DMAX & SOFT-START CONTROL
VCC ENABLE
VREF
VCC
OVER VOLTAGE MANAGEMENT
UVLO2
VCC ENABLE
7
2026
1N 10%
3026
680
6
1,9V
3014
3,9K
1%
0,56V
12
STANDBY (REDUCED FREQUENCY)
IREF
FOLDBACK
5
1,2V
3028
82K
3030
8,2K
CURRENT SENSE
2016
3,3N
10%
1,8V
13
VREF/2
ERROR AMP
2,5V
14
3016
15K
2018
1N 10%
3018
22K
4
0V
BUFFER
3
Y 3032
22
3020
18K
2,5V
15
THERMAL SHUTDOWN
SET
PWM LATCH
RESET
VC
2
12,7V
3034
82
VREF
IREF
UVLO1
UVLO2
3022
10K
1%
2,5V
16
REFERENCE BLOCK
VCC ENABLE
SUPPLY & INITIALISATION BLOCK
VCC
1
13V
MC44603P
7020
6032
BYV10-20
3050
39K
3052
39K
SOC1012T
2,8V
4
13V
5
BAV21
6036
3
2036
47U/50V
8001
4
7040
1V
STP3NA60
3040
4,7K
28mV
6042
BY268
6
3041
33
3043
10K
3042
10K
2042
47N/400V
3044
10K
Y 3048
1,5
1%
3046
1,8
1%
6048
1N4001
6046
1N4001
2070
47U/400V
DISCHARGE BEFORE REPAIRING!
300V
9
2059
470P/250V~
3055
1M
3057
1M
1010
T1,25A L
5010
X3008
0008
2050
68N/250V~
3054
1M
3056
1M
2054
470P/250V~
2056
470P/250V~
2052
68N/250V~
6050
DF08M
Y 5050
TRANSF."B"
TRANSF."D"
2X39MH
12
3058
3,9M
3059
3,9M

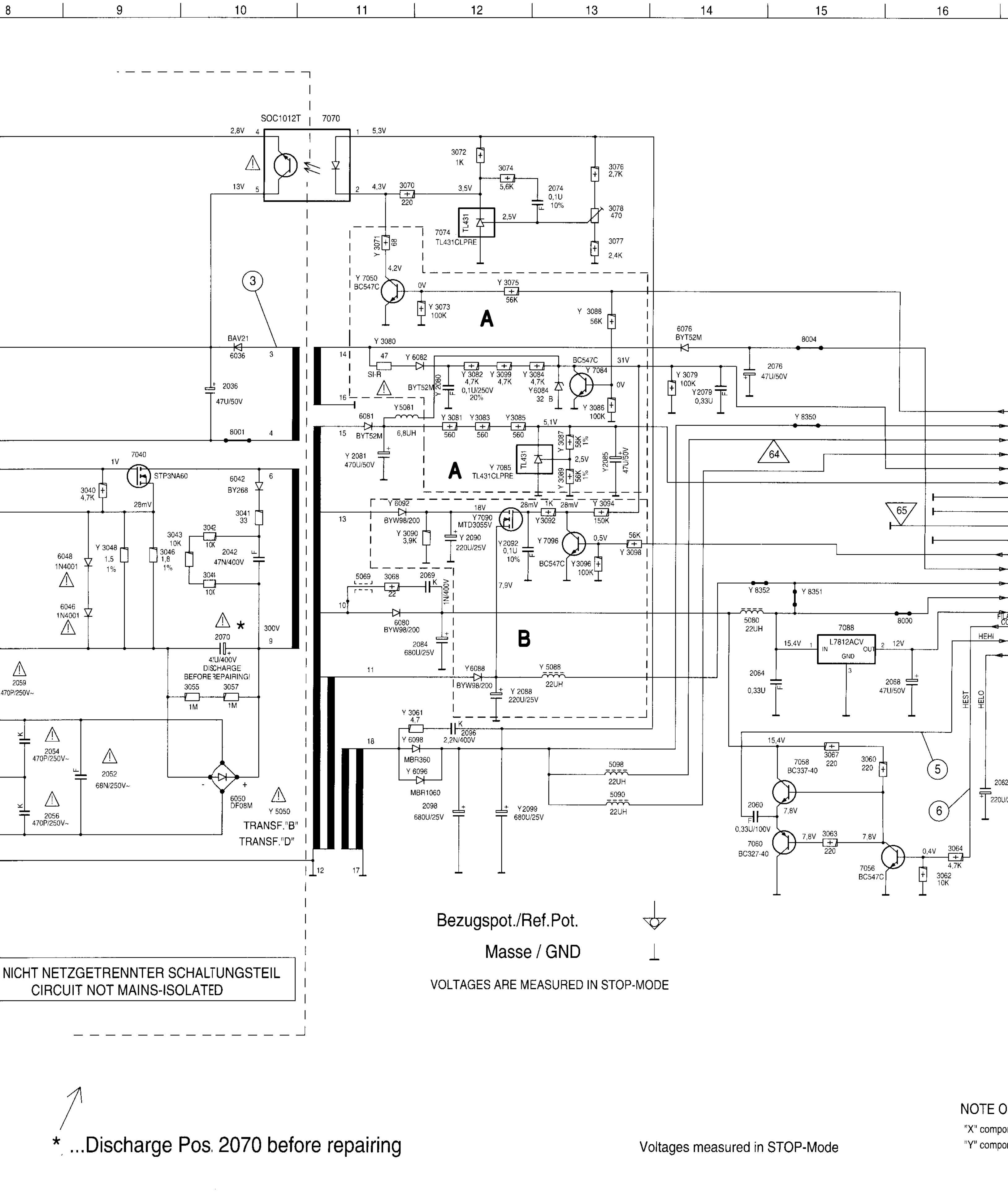
	For sets with				
	PSM2	**PSM2A**	**PSM2AF**	**PSM2B**	**PSM3**
A	Low P.Std.By	--	--	Low P.Std.By	Low P.Std.By
B	Turbo Drive	Turbo Drive	Turbo Drive	Turbo Drive	Turbo Drive
0014	--	--	--	--	Heat Sink(S-VHS)
0015	--	--	--	--	Clip (S-VHS)
2081	470µF/50V	47µF/50V	47µF/50V	470µF/50V	470µF/50V
2079	--	X	X	--	--
2099	X	X	X	X	X
3032	47	47	47	47	22
3048	1R5 1%	1R5 1%	1R5 1%	1R5 1%	1R5 1%
3061	X	X	X	2µ2	2µ2
3079	--	X	X	--	--
5050	Transf. B	Transf. B	Transf. D	Transf. D	Transf. D
5081	--	X	X	--	--
6084	X	--	--	X	X
6096	--	--	--	--	X
6098	X	X	X	X	--
8350	X	X	X	X	X
8351	--	--	--	--	--
8352	X	X	X	X	X

NICHT NETZGETRENNTER SCHALTUNGSTEIL
CIRCUIT NOT MAINS-ISOLATED

* ...Discharge Pos. 2070 before r

PCB Power Supply, PS

Transformer Type C (CU-Foil) is electr. equiv. to Transformer Type A
Transformer Type D (CU-Foil) is electr. equiv. to Transformer Type B


8
9
10
11
12
13
14
15
16
SOC1012T
7070
2,8V
5,3V
13V
4,3V
3070
220
3,5V
3072
1K
3074
5,6K
2074
0,1U
10%
3076
2,7K
3078
470
3077
2,4K
TL431
2,5V
7074
TL431CLPRE
Y 3071
68
4,2V
Y 7050
BC547C
0V
Y 3073
100K
Y 3075
56K
Y 3088
56K
A
③
BAV21
6036
2036
47U/50V
8001
Y 3080
47
SI-R
Y 6082
BYT52M
Y 2080
0,1U/250V
20%
Y 3082
4,7K
Y 3099
4,7K
Y 3084
4,7K
Y6084
32 B
BC547C
Y 7084
31V
0V
Y 3086
100K
6076
BYT52M
8004
Y 3079
100K
Y2079
0,33U
2076
47U/50V
6081
BYT52M
Y5081
6,8UH
Y 3081
560
Y3083
560
Y3085
560
5,1V
Y 3087
56K 1%
Y 3089
56K 1%
2,5V
Y2085
47U/50V
Y 7085
TL431CLPRE
Y 2081
470U/50V
Y 8350
64
65
7040
STP3NA60
1V
3040
4,7K
6042
BY268
28mV
3041
33
Y 3048
1,5
1%
3046
1,8
1%
3043
10K
3042
10K
2042
47N/400V
3044
10K
6048
1N4001
6046
1N4001
Y 6092
BYW98/200
18V
Y7090
MTD3055V
28mV
1K
Y3092
28mV
Y 3094
150K
Y 3090
3,9K
Y 2090
220U/25V
Y2092
0,1U
10%
Y 7096
BC547C
Y3096
100K
0,5V
56K
Y 3098
5069
3068
22
2069
1N/400V
7,9V
6080
BYW98/200
2084
680U/25V
B
Y 8352
Y 8351
5080
22UH
8000
7088
L7812ACV
IN
OUT
GND
15,4V
12V
2064
0,33U
2068
47U/50V
HEHI
HEST
HELO
*
2070
47U/400V
DISCHARGE
BEFORE REPAIRING!
300V
3055
1M
3057
1M
2059
470P/250V~
2054
470P/250V~
2052
68N/250V~
2056
470P/250V~
6050
DF08M
Y 5050
TRANSF."B"
TRANSF."D"
Y6088
BYW98/200
Y 2088
220U/25V
Y 5088
22UH
Y 3061
4,7
2096
2,2N/400V
Y 6098
MBR360
Y 6096
MBR1060
2098
680U/25V
Y2099
680U/25V
5098
22UH
5090
22UH
15,4V
3067
220
7058
BC337-40
3060
220
⑤
⑥
2060
0,33U/100V
7,8V
7060
BC327-40
7,8V
3063
220
7,8V
0,4V
3064
4,7K
7056
BC547C
3062
10K
2062
220U
1
2
3
4
5
6
9
10
11
12
13
14
15
16
17
18

Bezugspot./Ref.Pot.

Masse / GND

VOLTAGES ARE MEASURED IN STOP-MODE

NICHT NETZGETRENNTER SCHALTUNGSTEIL
CIRCUIT NOT MAINS-ISOLATED

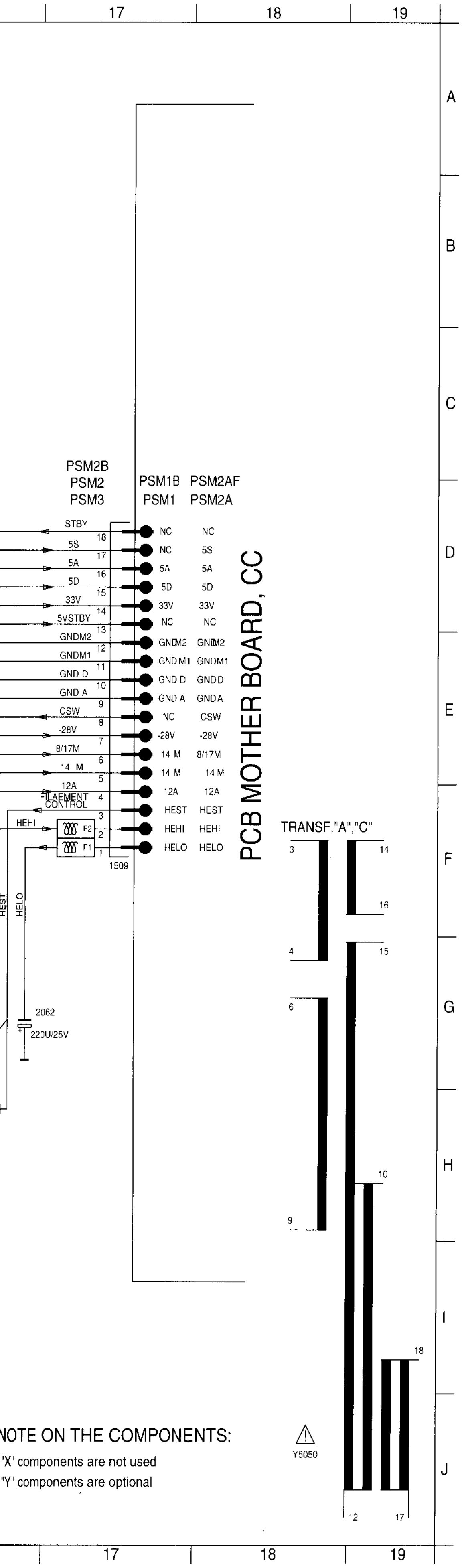
* ...Discharge Pos. 2070 before repairing

Voltages measured in STOP-Mode

NOTE O

"X" compo

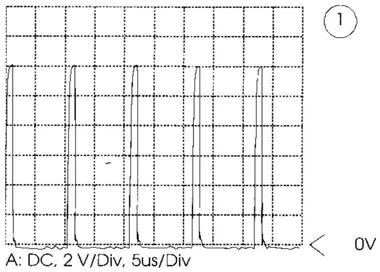
"Y" compo


17
18
19
A
B
C
D
E
F
G
H
I
J
PSM2B
PSM2
PSM3
PSM1B PSM2AF
PSM1 PSM2A
STBY 18 NC NC
5S 17 NC 5S
5A 16 5A 5A
5D 15 5D 5D
33V 14 33V 33V
5VSTBY 13 NC NC
GNDM2 12 GNDM2 GNDM2
GNDM1 11 GNDM1 GNDM1
GND D 10 GND D GNDD
GND A 9 GND A GNDA
CSW 8 NC CSW
-28V 7 -28V -28V
8/17M 6 14 M 8/17M
14 M 5 14 M 14 M
12A 4 12A 12A
FILAMENT CONTROL 3 HEST HEST
HEHI F2 2 HEHI HEHI
F1 1 HELO HELO
1509
HEST
HELO
2062
220U/25V
PCB MOTHER BOARD, CC
TRANSF."A","C"
3
14
16
4
15
6
10
9
18
12
17
Y5050
NOTE ON THE COMPONENTS:
"X" components are not used
"Y" components are optional

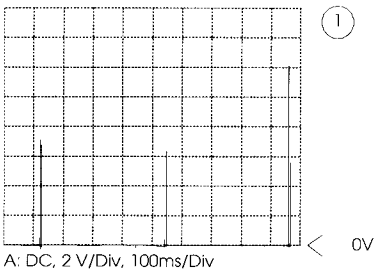
0008	G5
1010	F6
1509	F17
2012	C4
2014	C4
2016	D4
2018	D4
2026	C7
2030	B4
2032	B4
2036	D10
2042	E10
2050	G6
2052	G9
2054	G8
2056	G8
2059	F8
2060	G14
2062	G17
2064	F14
2068	F16
2069	E12
2070	F10
2074	B13
2076	C15
2079	D14
2080	D12
2081	D11
2084	F12
2085	D13
2088	F12
2090	E12
2092	E12
2096	G12
2098	G12
2099	G13
3008	G6
3010	B3
3012	B4
3014	D4
3016	D3
3018	D4
3020	E4
3022	E4
3026	C7
3028	C7
3030	D7
3032	D7
3034	E7
3040	E9
3041	E10
3042	E10
3043	E9
3044	E10
3046	E9
3048	E9
3050	E8
3052	F7
3054	G7
3055	F10
3056	G7
3057	F10
3058	H7
3059	H8
3060	G15
3061	F12
3062	H16
3063	G15
3064	H16
3067	G15
3068	E11
3070	B11
3071	B11
3072	B12
3073	C12
3074	B12
3075	C12
3076	B13
3077	B13
3078	B13
3079	D14
3080	C11
3081	D12
3082	D12
3083	D12
3084	D13
3085	D12
3086	D13
3087	D13
3088	C13
3089	D13
3090	E11
3092	E13
3094	E13
3096	E13
3098	E13
3099	D12
5010	F7
5050	G10
5069	E11
5080	F14
5081	D11
5088	F13
5090	G13
5098	G13
6032	E7
6036	C10
6042	D10
6046	F9
6048	E9
6050	G10
6076	C14
6080	F11
6081	D11
6082	C12
6084	D13
6088	F12
6092	E11
6096	G12
6098	G12
7020	E5
7040	D9
7050	C11
7056	H15
7058	G15
7060	H14
7070	A11
7074	B12
7084	D13
7085	D12
7088	F15
7090	E12
7096	E13

Playback:

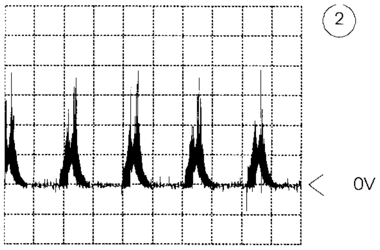
Low Power Standby:



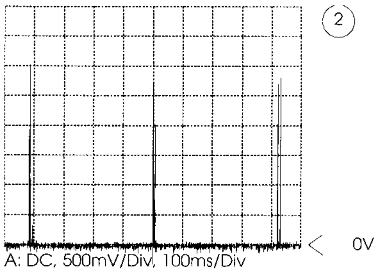
A: DC, 2 V/Div, 5us/Div
IC 7020 Pin 3



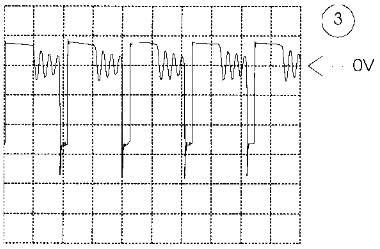
A: DC, 2 V/Div, 100ms/Div
IC 7020 Pin 3



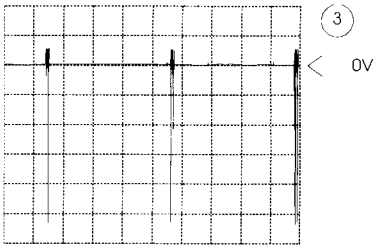
A: DC, 200mV/Div, 5us/Div
IC 7020 Pin 7



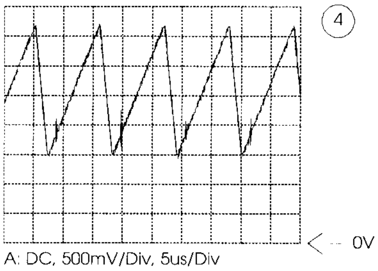
A: DC, 500mV/Div, 100ms/Div
IC 7020 Pin 7



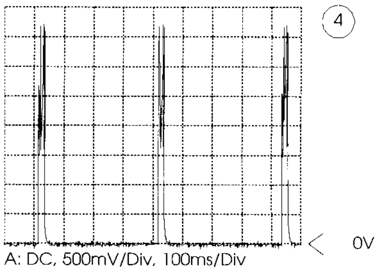
A: DC, 20 V/Div, 5us/Div
Diode 6036 Anode



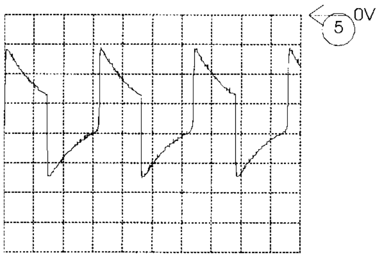
A: DC, 10 V/Div, 100ms/Div
Diode 6036 Anode



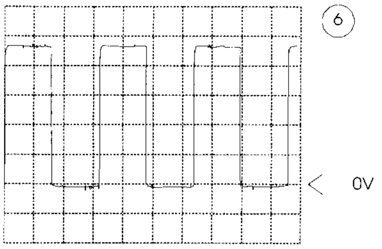
A: DC, 500mV/Div, 5us/Div
IC 7020 Pin 10



A: DC, 500mV/Div, 100ms/Div
IC 7020 Pin 10



A: DC, 5 V/Div, 10us/Div
Connector 1509 Pin 2



A: DC, 1 V/Div, 10us/Div
Connector 1509 Pin 3

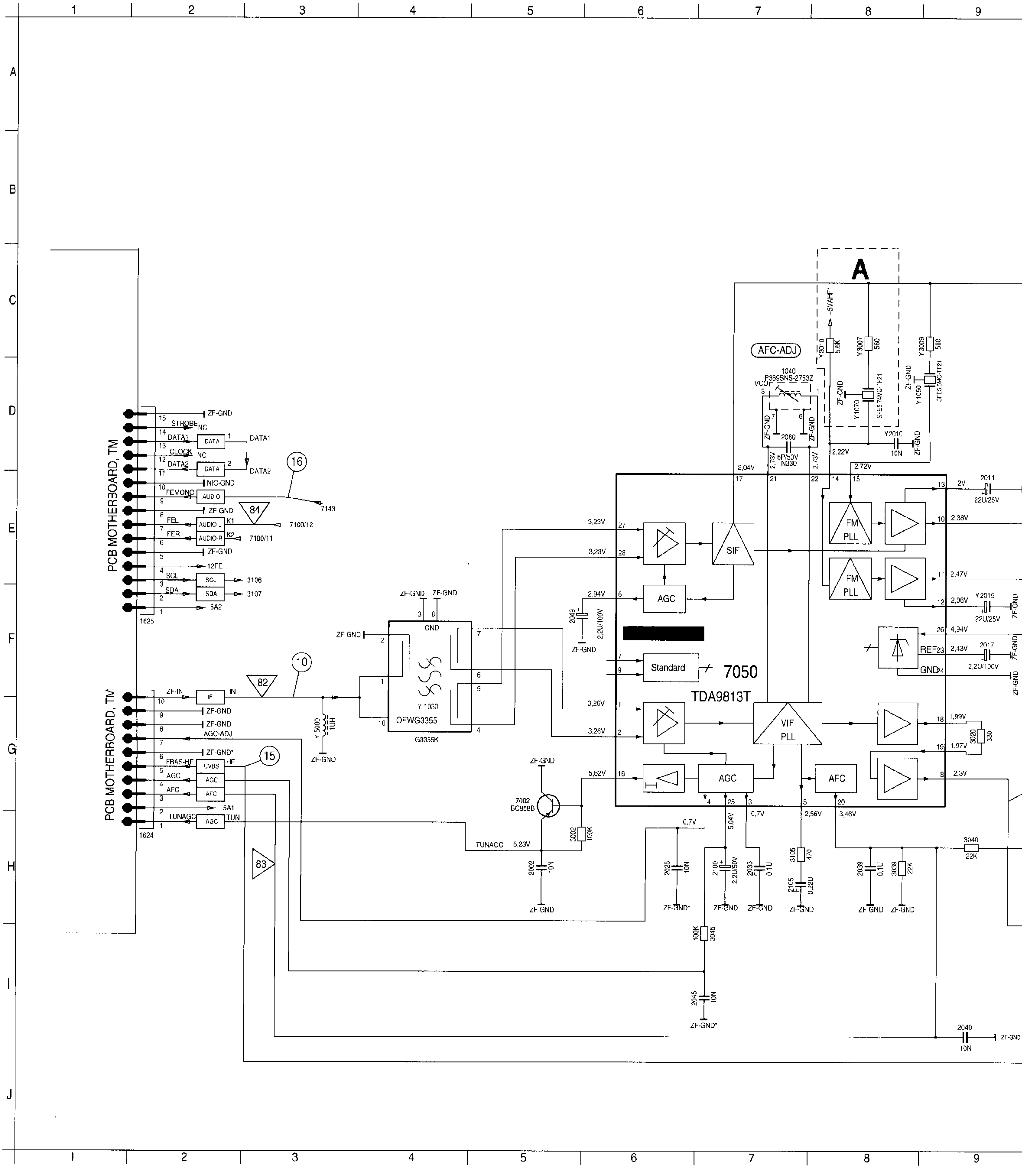
Interconnections:

PS page 3-27	SE page 3-35	DE page 3-38	VP page 3-41	VT page 3-46	SF page 3-53
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP page 3-54
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC page 3-57...

Note on the components: "X" components are not used "Y" components are optional

Front End Board PAL B/G/I (FE)

1030 G4
1040 D7
1050 D8
1070 D8
1110 H10
1120 G15
1140 F25
1624 H2
1625 F2
2002 H5
2010 D8
2011 E9
2015 F9
2017 F9
2019 F10
2025 H6
2033 H7
2039 H8
2040 I9
2045 I7
2048 F13
2049 F5
2050 G11
2052 F12
2063 C13
2065 D13
2069 E12
2070 E12
2080 D7
2082 F13
2085 G14
2090 B15
2092 B15
2095 B18
2097 B18
2100 H7
2101 E13
2102 E13
2103 E13
2104 D22
2105 H7
2106 D22
2123 H11
2125 H11
2190 C22
2192 C22
2195 C22
2197 C22
2200 D22
2202 D22
2210 E21
2212 E21
2214 E22
2215 F21
2218 F22
2221 F20
2228 G21
2229 G21
2235 C24
2243 C25
2245 B26
2247 F23
2249 F23
2251 F23
2253 G24
2255 G24
2257 F25
2259 F25
2261 F26
2263 F26
2265 G26
2269 B29
2270 B29
2273 C29
2274 C27
2275 C28
2287 E27
2288 D27
2290 E27
2292 E28
2294 E28
2296 E28
2298 E28
2300 E27
2302 F28
2304 F27
2306 F29
3002 H5
3007 C8
3009 C9
3010 C8
3020 G9
3039 H8
3040 H9
3045 I7
3050 F11
3052 F12
3055 F12
3060 C12
3063 C12
3065 D12
3067 D12
3069 D12
3093 C17
3094 C17
3095 B18
3105 H7
3106 E17
3107 E17
3109 G18
3111 H10
3112 I11
3115 H11
3116 I11
3117 H11
3142 F20
3199 C22
3210 E20
3214 E21
3215 E21
3222 F20
3224 F20
3225 F20
3228 G20
3234 C24
3235 C24
3238
3240
3243
3253
3255
3267


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
PCB MOTHERBOARD, TM
15 STROBE NC
14 DATA1 DATA
13 CLOCK NC
12 DATA2 DATA
11 NIC-GND
10 FEMONO AUDIO
9 ZF-GND
8 FEL AUDIO-L K1
7 FER AUDIO-R K2
6 ZF-GND
5 12FE
4 SCL SCL
3 SDA SDA
2
1 5A2
1625
DATA1
DATA2
16
7143
84
7100/12
7100/11
3106
3107
PCB MOTHERBOARD, TM
10 ZF-IN IF IN
9 ZF-GND
8 ZF-GND AGC-ADJ
7 ZF-GND*
6 FBAS-HF CVBS HF
5 AGC AGC
4 AFC AFC
3
2 5A1
1 TUNAGC AGC TUN
1624
82
10
15
83
Y 5000 1UH
ZF-GND
OFWG3355
Y 1030
G3355K
GND
ZF-GND ZF-GND
7050
TDA9813T
SIF
AGC
Standard
FM PLL
FM PLL
VIF PLL
AFC
REF
GND
A
AFC-ADJ
1040 P369SNS-2753Z
VCOF
2080 6P/50V N330
Y3010 5,6K
+5VAHF*
Y3007 560
Y1070 SFE5,74MC-TF21
Y3009 560
Y1050 SFE5,5MC-TF21
Y2010 10N
2011 22U/25V
Y2015 22U/25V
2017 2,2U/100V
2049 2,2U/100V
3020 330
7002 BC858B
3002 100K
2002 10N
TUNAGC 6,23V
2025 10N
2100 2,2U/50V
2033 0,1U
3105 470
2105 0,22U
2039 0,1U
3039 22K
3040 22K
3045 100K
2045 10N
2040 10N
ZF-GND*
2,04V
2,73V
2,73V
2,22V
2,72V
2V
2,38V
2,47V
2,06V
4,94V
2,43V
1,99V
1,97V
2,3V
3,23V
3,23V
2,94V
3,26V
3,26V
5,62V
0,7V
5,04V
0,7V
2,56V
3,46V

3010 C8
3020 G9
3039 H8
3040 H9
3045 I7
3050 F11

3052 F12
3055 F12
3060 C12
3063 C12
3065 D12
3067 D12

3069 D12
3093 C17
3094 C17
3095 B18
3105 H7
3106 E17

3107 E17
3109 G18
3111 H10
3112 I11
3115 H11
3116 I11

3117 H11
3142 F20
3199 C22
3210 E20
3214 E21
3215 E21

3222 F20
3224 F20
3225 F20
3228 G20
3234 C24
3235 C24

3238 C24
3240 C24
3243 C25
3253 F24
3255 F25
3267 C28

3271 C30
3273 C29
3275 C27
3277 D27
3280 C30
3282 D30

3285 D28
3300 E28
3302 F27
3304 F27
3305 G28
3306 F29

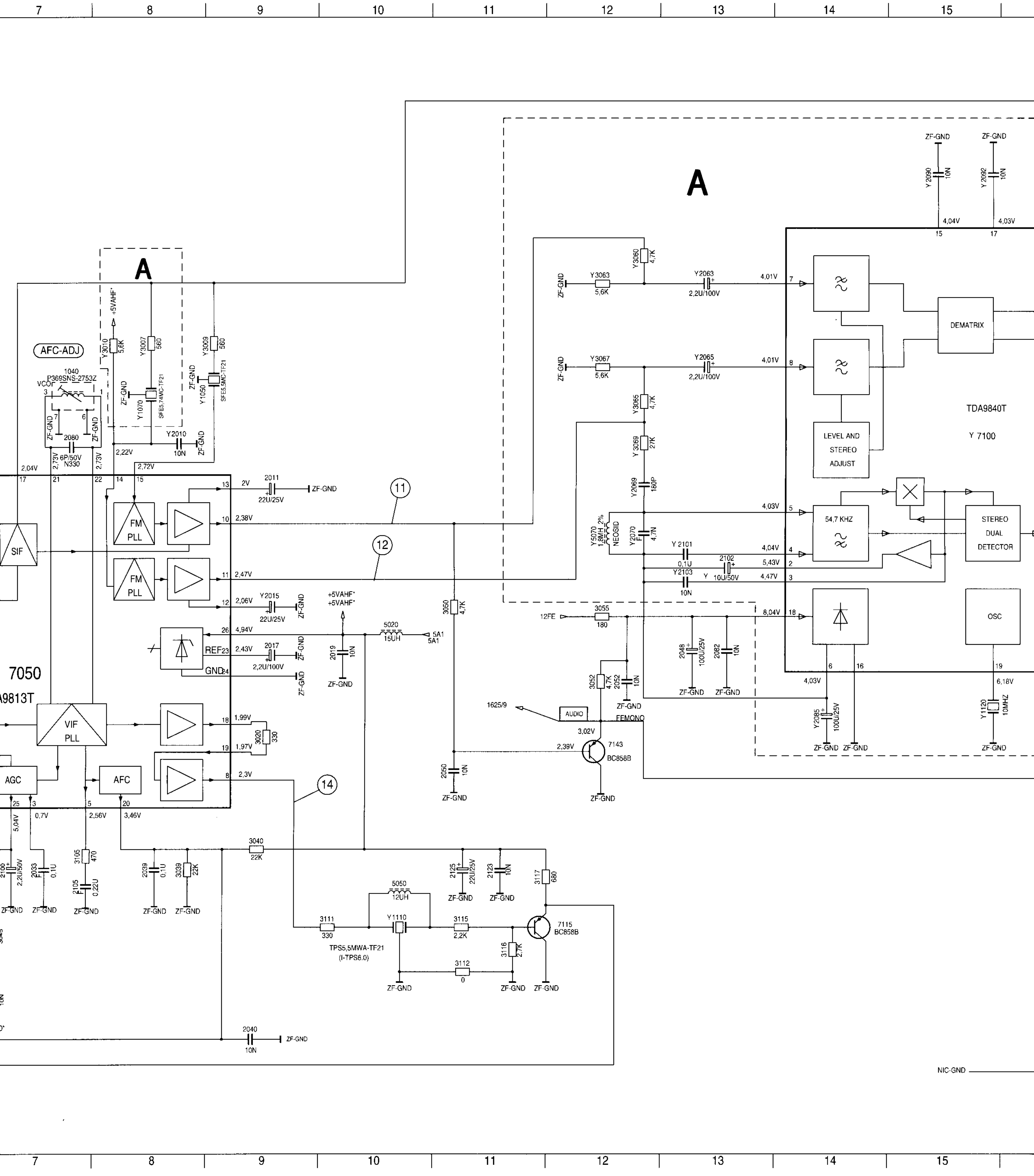
3308 F30
3309 F30
3310 G30
5000 G3
5020 F10
5050 H10

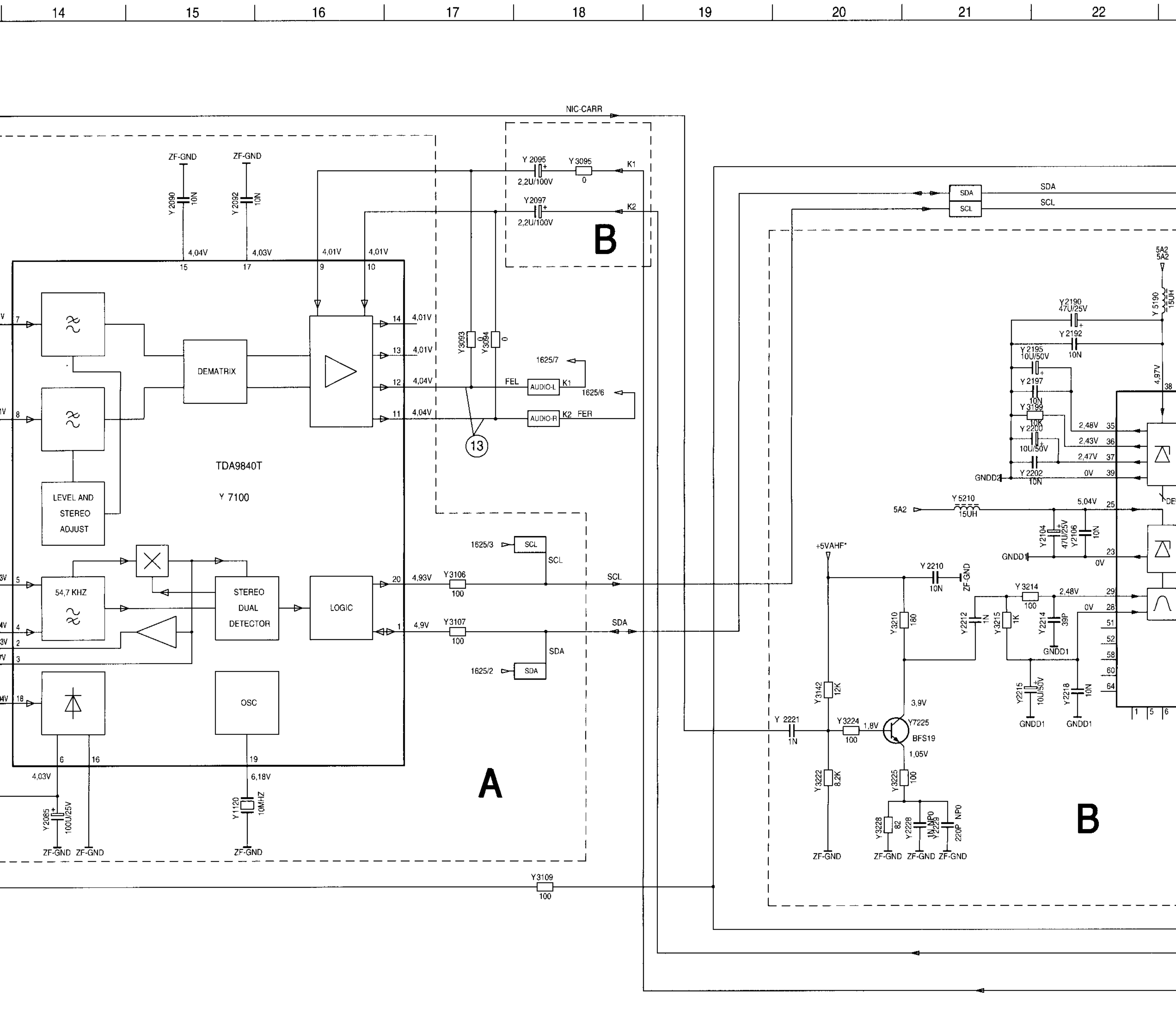
5070 E12
5190 C22
5210 D21
5255 G25
5263 G26
5270 B30

5285 D29
6243 C25
6255 G25
7002 G5
7050 F7
7100 D15

7115 H12
7143 G12
7200 D25
7225 F21
7275 C30
7275 C28

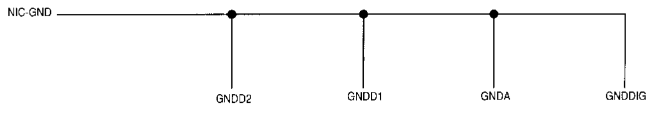
7305 F30
7305 G28


7
8
9
10
11
12
13
14
15
A
A
AFC-ADJ
1040
P369SNS-2753Z
VCO
+5VAHF'
Y3010 5,6K
Y3007 560
Y3009 560
Y1070 SFE5,74MC-TF21
Y1050 SFE5,5MC-TF21
2080 6P/50V N330
Y2010 10N
ZF-GND
2,04V
2,73V
2,73V
2,22V
2,72V
SIF
FM PLL
FM PLL
2011 22U/25V
2V
2,38V
2,47V
2,06V
Y2015 22U/25V
4,94V
2,43V
2017 2,2U/100V
REF
GND
7050
A9813T
VIF PLL
AGC
AFC
1,99V
1,97V
3020 330
2,3V
0,7V
2,56V
3,46V
5,04V
2100 2,2U/50V
2033 0,1U
3105 470
2105 0,22U
2039 0,1U
3039 22K
3040 22K
+5VAHF'
5020 15UH
5A1
2019 10N
11
12
14
3050 4,7K
2050 10N
5050 12UH
Y1110
TPS5,5MWA-TF21 (I-TPS6.0)
3111 330
3115 2,2K
3116 2,7K
3112 0
2125 22U/25V
2123 10N
3117 680
7115 BC858B
2040 10N
Y3063 5,6K
Y3060 4,7K
Y2063 2,2U/100V
4,01V
Y3067 5,6K
Y2065 2,2U/100V
4,01V
Y3065 4,7K
Y 3069 27K
Y2069 180P
Y5070 1,8MH 2% NEOSID
Y2070 4,7N
Y 2101 0,1U
2102 10U/50V
Y2103 10N
4,03V
4,04V
5,43V
4,47V
12FE
3055 180
8,04V
2048 100U/25V
2082 10N
3052 4,7K
2052 10N
1625/9
AUDIO
FEMONO
3,02V
2,39V
7143 BC858B
Y2090 10N
Y2092 10N
4,04V
4,03V
DEMATRIX
LEVEL AND STEREO ADJUST
TDA9840T
Y 7100
54,7 KHZ
STEREO DUAL DETECTOR
OSC
4,03V
Y2085 100U/25V
6,18V
Y1120 10MHZ
NIC-GND



14
15
16
17
18
19
20
21
22
NIC-CARR
ZF-GND
ZF-GND
Y 2090
10N
Y 2092
10N
4,04V
4,03V
4,01V
4,01V
15
17
9
10
Y 2095
2,2U/100V
Y 3095
0
K1
Y2097
2,2U/100V
K2
B
DEMATRIX
14
4,01V
13
4,01V
12
4,04V
11
4,04V
Y3093
0
Y3094
0
1625/7
FEL
AUDIO-L
K1
1625/6
AUDIO-R
K2
FER
13
TDA9840T
Y 7100
LEVEL AND
STEREO
ADJUST
54,7 KHZ
STEREO
DUAL
DETECTOR
LOGIC
OSC
20
4,93V
Y3106
100
SCL
1
4,9V
Y3107
100
SDA
1625/3
SCL
1625/2
SDA
6
16
19
4,03V
6,18V
Y2085
100U/25V
Y1120
10MHZ
ZF-GND
ZF-GND
ZF-GND
A
Y3109
100
SDA
SCL
5A2
Y 5190
15UH
Y2190
47U/25V
Y 2192
10N
Y 2195
10U/50V
Y 2197
10N
Y 3199
10K
Y 2200
10U/50V
Y 2202
10N
GNDD2
4,97V
38
2,48V
35
2,43V
36
2,47V
37
0V
39
5A2
Y 5210
15UH
5,04V
25
Y2104
47U/25V
Y2106
10N
GNDD1
0V
23
+5VAHF*
Y 2210
10N
ZF-GND
Y 3214
100
2,48V
29
0V
28
Y2212
1N
Y3215
1K
Y2214
39P
GNDD1
51
52
58
60
64
Y3210
180
3,9V
Y7225
BFS19
Y3142
12K
Y 2221
1N
Y3224
100
1,8V
1,05V
Y2215
10U/50V
Y2218
10N
GNDD1
GNDD1
Y3222
8,2K
Y3225
100
Y3228
82
Y2228
1N
Y2229
NP0
220P NP0
ZF-GND
ZF-GND
ZF-GND
ZF-GND
B

A
B
Y1030
Y1050
Y1110
Y2010
Y2015
Y2245
Y2265
Y3009
Y3093
Y3094
Y3109
Y5000



NIC-GND
GNDD2
GNDD1
GNDA
GNDDIG

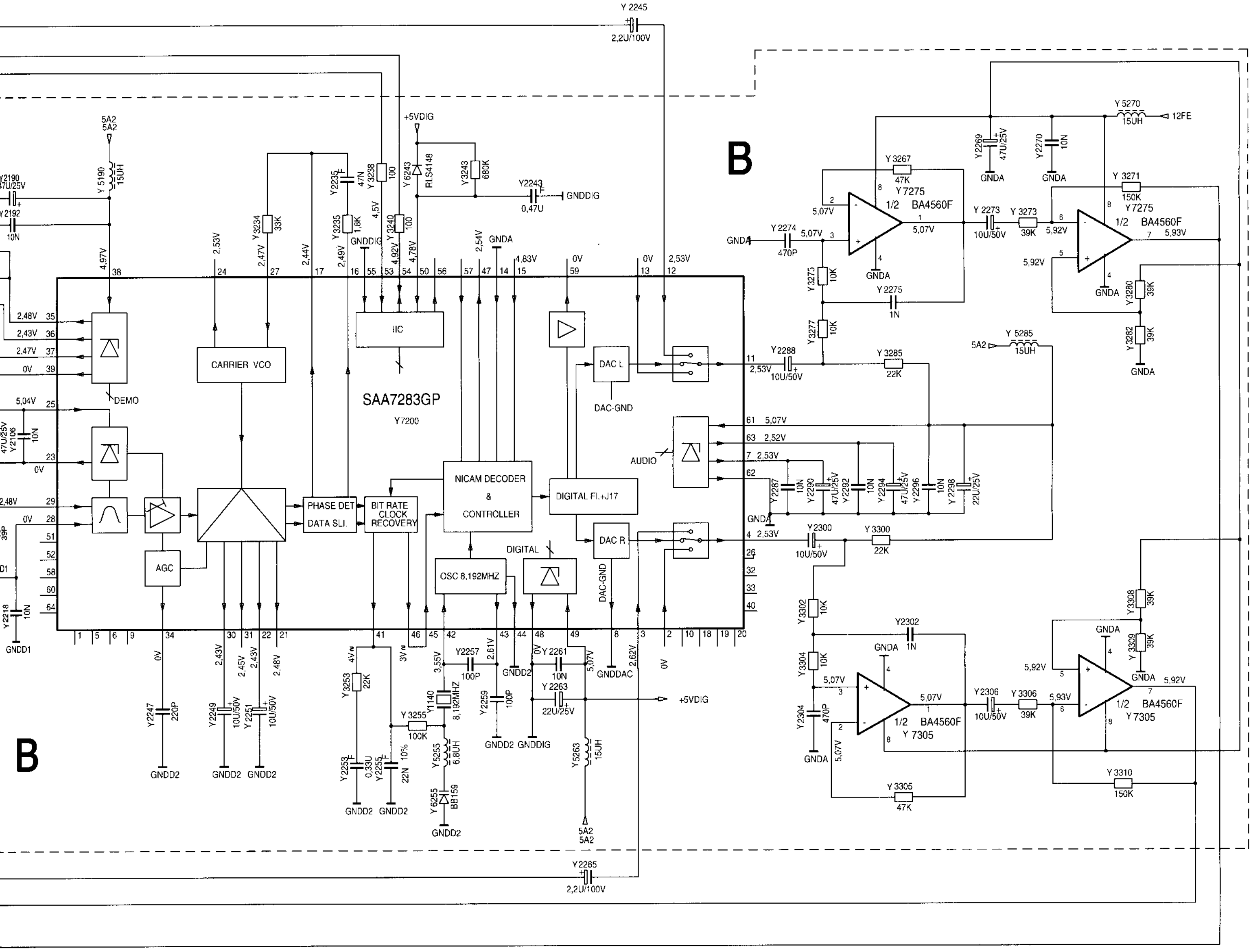
14 15 16 17 18 19 20 21 22

Interconnections:

PS page 3-27	SE page 3-35	DE page 3-38	VP page 3-41	VT page 3-46	SF
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC

Note on the components: "X" components are not used "Y" components are opti

22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30


B
B
SAA7283GP
Y7200
CARRIER VCO
IIC
DEMO
AGC
PHASE DET
DATA SLI.
BIT RATE CLOCK RECOVERY
NICAM DECODER & CONTROLLER
DIGITAL FI.+J17
OSC 8,192MHZ
DIGITAL
DAC L
DAC R
DAC-GND
AUDIO
Y 2245 2,2U/100V
Y 2285 2,2U/100V
5A2
Y 5190 15UH
Y2190 47U/25V
Y2192 10N
Y2106 47U/25V
Y2218 10N
GNDD1
+5VDIG
Y 6243 RLS4148
Y 3243 680K
Y2243 0,47U
GNDDIG
Y3238 100
Y3240 100
Y2235 47N
Y3235 1,8K
Y3234 33K
GNDA
Y2247 220P
Y2249 10U/50V
Y2251 10U/50V
GNDD2
Y3253 22K
Y2253 0,33U
Y2255 22N 10%
Y 3255 100K
Y1140 8,192MHZ
Y5255 6,8UH
Y 6255 BB159
Y2257 100P
Y2259 100P
Y 2261 10N
Y 2263 22U/25V
Y5263 15UH
GNDDAC
Y 5270 15UH
12FE
Y2269 47U/25V
Y2270 10N
Y 3267 47K
Y7275
1/2 BA4560F
Y 2274 470P
Y 2275 1N
Y3275 10K
Y3277 10K
Y 2273 10U/50V
Y 3273 39K
Y 3271 150K
Y3280 39K
Y3282 39K
Y 5285 15UH
Y2288 10U/50V
Y 3285 22K
Y2287 10N
Y2290 47U/25V
Y2292 10N
Y2294 47U/25V
Y2296 10N
Y2298 22U/25V
Y2300 10U/50V
Y 3300 22K
Y3302 10K
Y2302 1N
Y3304 10K
Y2304 470P
Y 7305
Y 3305 47K
Y2306 10U/50V
Y 3306 39K
Y3308 39K
Y3309 39K
Y 3310 150K

	For sets with		
	PAL B/G	**PAL B/G NICAM**	**PAL I NICAM**
A	X	X	--
B	--	X	X
Y1030	X	X	J3652K
Y1050	X	X	SFE 6,0
Y1110	X	X	TPS 6,0
Y2010	--	--	X
Y2015	X	X	--
Y2245	--	--	X
Y2265	--	--	X
Y3009	X	X	470
Y3093	--	--	X
Y3094	--	--	X
Y3109	--	--	X
Y5000	X	X	0,68µH

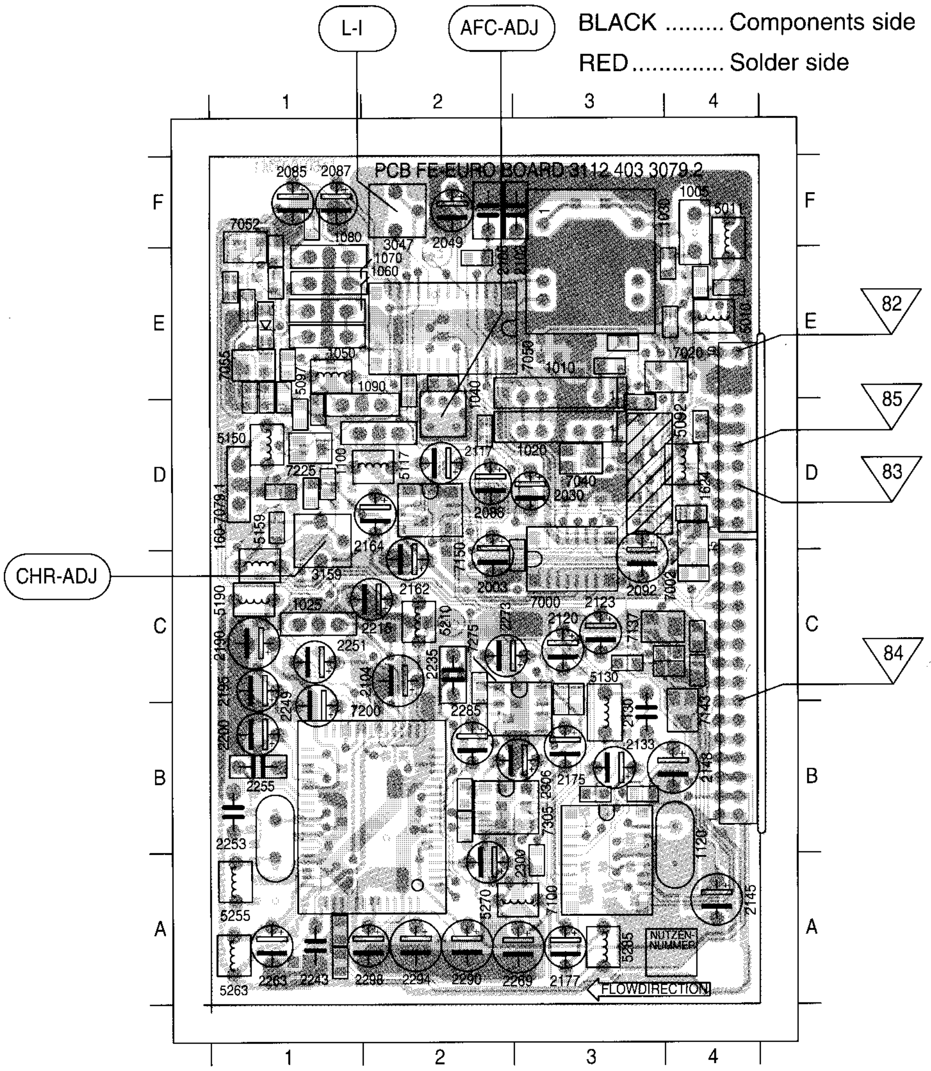
.... DC VOLTAGES FOR ALL MODUS
⟨...V⟩ DC VOLTAGES MEASURED PLAYBACK
[...V] DC VOLTAGES MEASURED RECORD

22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30

Front End Board Multistandard

Conventional Assembly

View of components side


L-I
AFC-ADJ
BLACK .... Components side
RED............. Solder side
1
2
3
4
F
E
D
C
B
A
PCB FE-EURO BOARD 3112 403 3079.2
82
85
83
84
CHR-ADJ
NUTZEN-NUMMER
FLOWDIRECTION
2085
2087
7052
1080
3047
2049
1070
1060
1005
5011
5010
7020
1050
7055
5097
1090
1040
7050
1010
5092
5150
1100
5117
2117
1020
7225
2088
7040
2030
1624
160-7079.1
5159
2164
3159
7150
2003
7000
2092
7002
5190
2162
1025
5210
2273
2120
2123
7137
2215
2251
2190
2195
2104
2235
7215
5130
2249
7200
2285
2130
7143
2200
2133
2255
2306
2175
2148
2253
7305
1120
2300
5255
5270
7100
2145
5285
5263
2263
2243
2298
2294
2290
2269
2177

XX = Testpoint

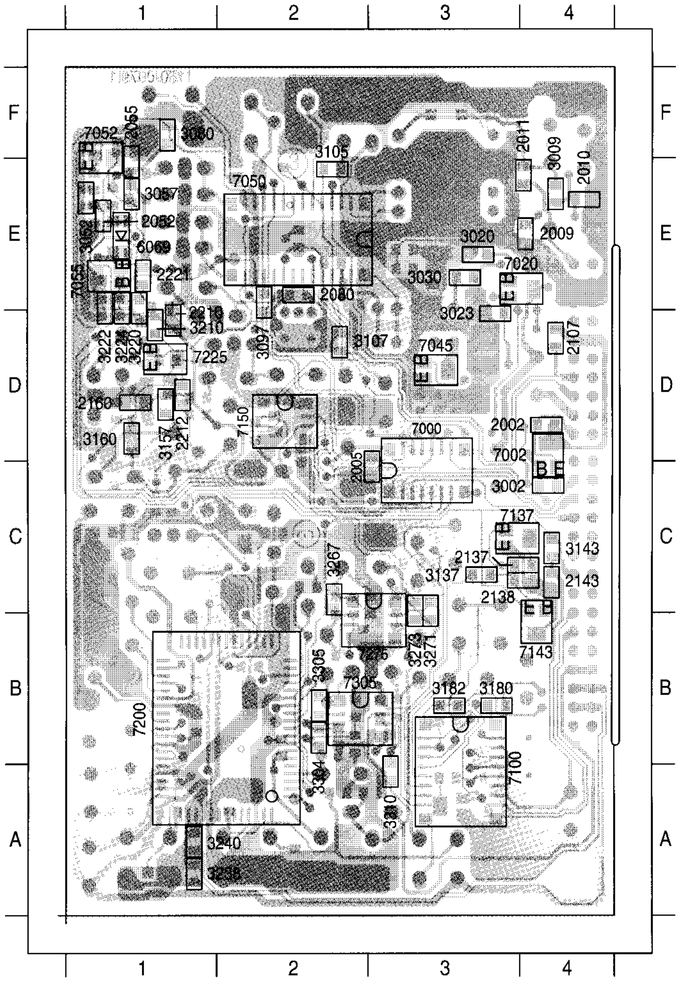
XXX = Adjustment

1005	F 4	1624	D 4	2130	B 3	2251	C 1	5011	F 4
1010	E 3	1625	C 4	2133	B 3	2253	B 1	5092	D 4
1020	D 3	2003	C 2	2145	A 4	2255	B 1	5097	E 1
1025	C 1	2030	D 3	2148	B 4	2263	A 1	5117	D 2
1030	E 3	2049	F 2	2162	C 2	2269	A 3	5130	B 3
1040	D 2	2085	F 1	2164	D 2	2273	C 2	5150	D 1
1050	E 1	2087	F 1	2175	B 3	2285	B 2	5159	C 1
1060	E 1	2088	D 2	2177	A 3	2290	A 2	5190	C 1
1070	E 1	2092	C 3	2190	C 1	2294	A 2	5210	C 2
1080	E 1	2102	F 3	2195	C 1	2298	A 2	5255	A 1
1090	D 2	2104	C 2	2200	B 1	2300	A 2	5263	A 1
1100	D 2	2105	F 2	2215	C 2	2306	B 3	5270	A 3
1110	D 1	2117	D 2	2235	C 2	3047	F 2	5285	A 3
1120	B 4	2120	C 3	2243	A 1	3159	D 1		
1140	B 1	2123	C 3	2249	C 1	5010	E 4		

SMD Assembly

View of components side

BLACK .... Components side
RED .... Solder side

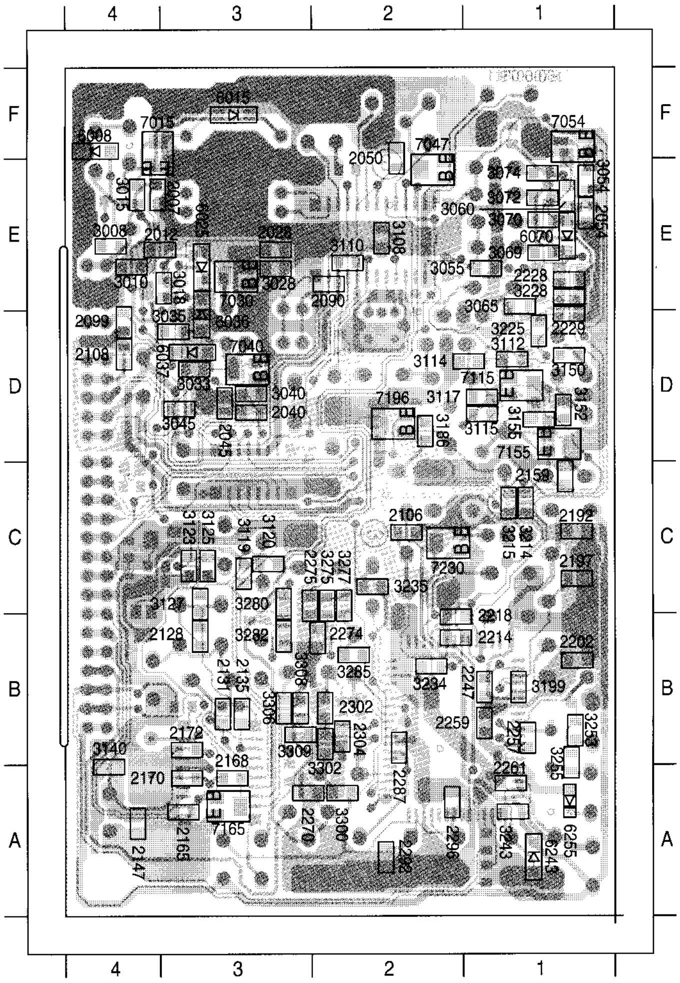

1
2
3
4
F
E
D
C
B
A
7052
2055
3080
3105
7050
2011
3009
2010
3057
2052
6069
3052
2221
7055
2009
3020
7020
3030
3023
2080
2210
3210
3097
3107
7045
2107
3222
3224
3220
7225
2160
3157
2212
7150
7000
2002
7002
3002
3160
2005
7137
3143
2137
3137
2143
2138
3267
7143
7275
3273
3271
3305
7305
3182
3180
7200
3304
3310
7100
3240
3238

2002	D 4	2210	D 1	3107	D 2	3267	C 2	7055	E 1
2005	C 3	2212	D 1	3137	C 3	3271	C 3	7100	A 3
2009	E 4	2221	E 1	3143	C 4	3273	C 3	7137	C 4
2010	E 4	3002	C 4	3157	D 1	3304	B 2	7143	B 4
2011	E 4	3009	E 4	3160	D 1	3305	B 2	7150	D 2
2052	E 1	3020	E 3	3180	B 3	3310	A 3	7200	B 2
2055	F 1	3023	E 3	3182	B 3	6069	E 1	7225	D 1
2080	E 2	3030	E 3	3210	D 1	7000	C 3	7275	B 3
2107	D 4	3052	E 1	3220	E 1	7002	D 4	7305	B 2
2137	C 4	3057	E 1	3222	E 1	7020	E 4		
2138	C 4	3080	F 1	3224	E 1	7045	D 3		
2143	C 4	3097	E 2	3238	A 1	7050	E 2		
2160	D 1	3105	E 2	3240	A 1	7052	F 1		

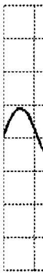
SMD Assembly

View of solder side

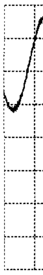
BLACK .... Solder side
RED .... Components side


4
3
2
1
F
E
D
C
B
A
6015
6008
7015
7054
7047
2050
3074
3054
3072
2054
3060
3070
6070
3015
2007
6025
3008
2012
2028
3110
3108
3069
3055
2228
3228
3010
3018
3028
7030
2090
3065
2099
3035
6036
3225
2229
3112
7040
2108
6037
3114
7115
3150
3033
3040
7196
3117
3152
2040
3186
3045
2045
3115
3155
7155
2159
2106
2192
3123
3125
3119
3120
3215
3214
3277
2275
3275
7230
2197
3235
3127
3280
2218
2128
3282
2274
2214
2202
3308
3285
2131
2135
3234
2247
3199
3306
2302
2259
3253
2172
2304
2257
3140
3309
3255
2168
2170
3302
2287
2261
6255
7165
2165
2270
3300
2296
3243
6243
2147
2292

A: DC
Conn



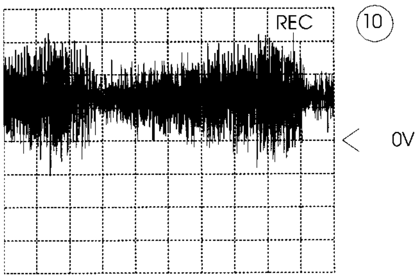
A: DC
IC 71



A: DC
Conn

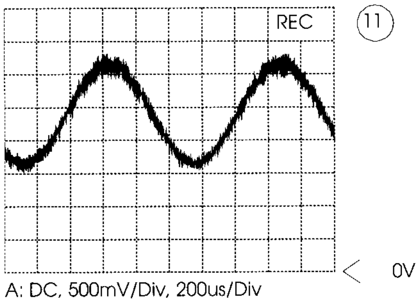
2007	E 4	2202	B 1	3033	D 3	3127	C 3	3302	B 2
2012	E 4	2214	B 2	3035	D 3	3140	B 4	3306	B 3
2028	E 3	2218	C 2	3040	D 3	3150	D 1	3308	B 3
2040	D 3	2228	E 1	3045	D 3	3152	D 1	3309	B 3
2045	D 3	2229	E 1	3054	E 1	3155	D 1	6008	F 4
2050	F 2	2247	B 1	3055	E 1	3186	D 2	6015	F 3
2054	E 1	2257	B 1	3060	E 1	3199	B 1	6025	E 3
2090	E 2	2259	B 1	3065	E 1	3214	C 1	6036	E 3
2099	D 4	2261	A 1	3069	E 1	3215	C 1	6037	D 3
2106	C 2	2270	A 3	3070	E 1	3225	D 1	6070	E 1
2108	D 4	2274	B 2	3072	E 1	3228	E 1	6243	A 1
2128	B 3	2275	C 3	3074	E 1	3234	B 2	6255	A 1
2131	B 3	2287	B 2	3108	E 2	3235	C 2	7015	F 4
2135	B 3	2292	A 2	3110	E 2	3243	A 1	7030	E 3
2147	A 4	2296	A 2	3112	D 1	3253	B 1	7040	D 3
2159	C 1	2302	B 2	3114	D 1	3255	B 1	7047	E 2
2165	A 3	2304	B 2	3115	D 1	3275	C 2	7054	F 1
2168	A 3	3008	E 4	3117	D 1	3277	C 2	7115	D 1
2170	A 3	3010	E 4	3119	C 3	3280	C 3	7155	D 1
2172	B 3	3015	E 4	3120	C 3	3282	B 3	7165	A 3
2192	C 1	3018	E 4	3123	C 3	3285	B 2	7196	D 2
2197	C 1	3028	E 3	3125	C 3	3300	A 2	7230	C 2

⑩



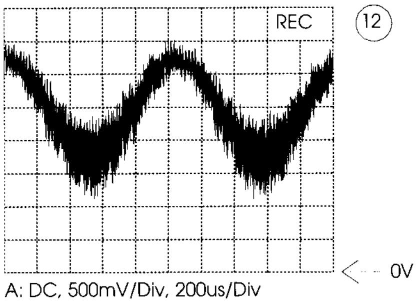
A: DC, 500mV/Div, 10us/Div
Connector 1624 Pin 10

⑪



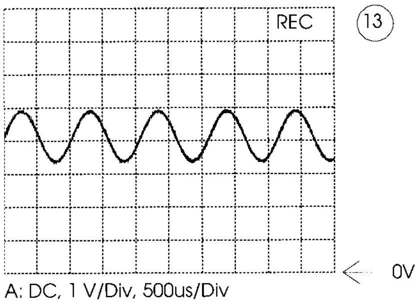
A: DC, 500mV/Div, 200us/Div
IC 7050 Pin 10

⑫



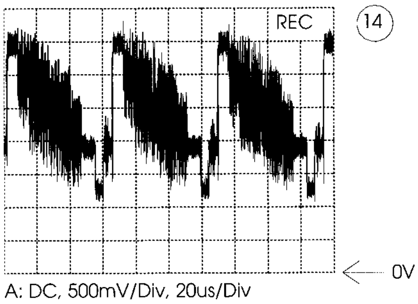
A: DC, 500mV/Div, 200us/Div
IC 7050 Pin 11

⑬



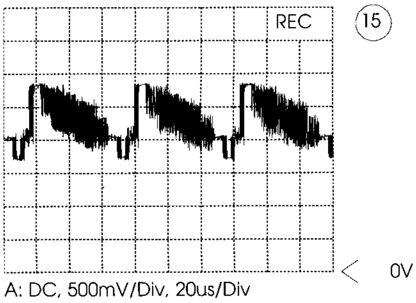
A: DC, 1 V/Div, 500us/Div
IC 7100 Pin 11/12

⑭



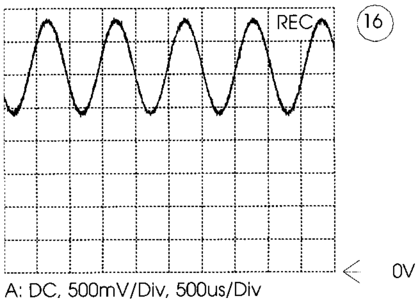
A: DC, 500mV/Div, 20us/Div
IC 7050 Pin 8

⑮



A: DC, 500mV/Div, 20us/Div
Connector 1624 Pin 5

⑯

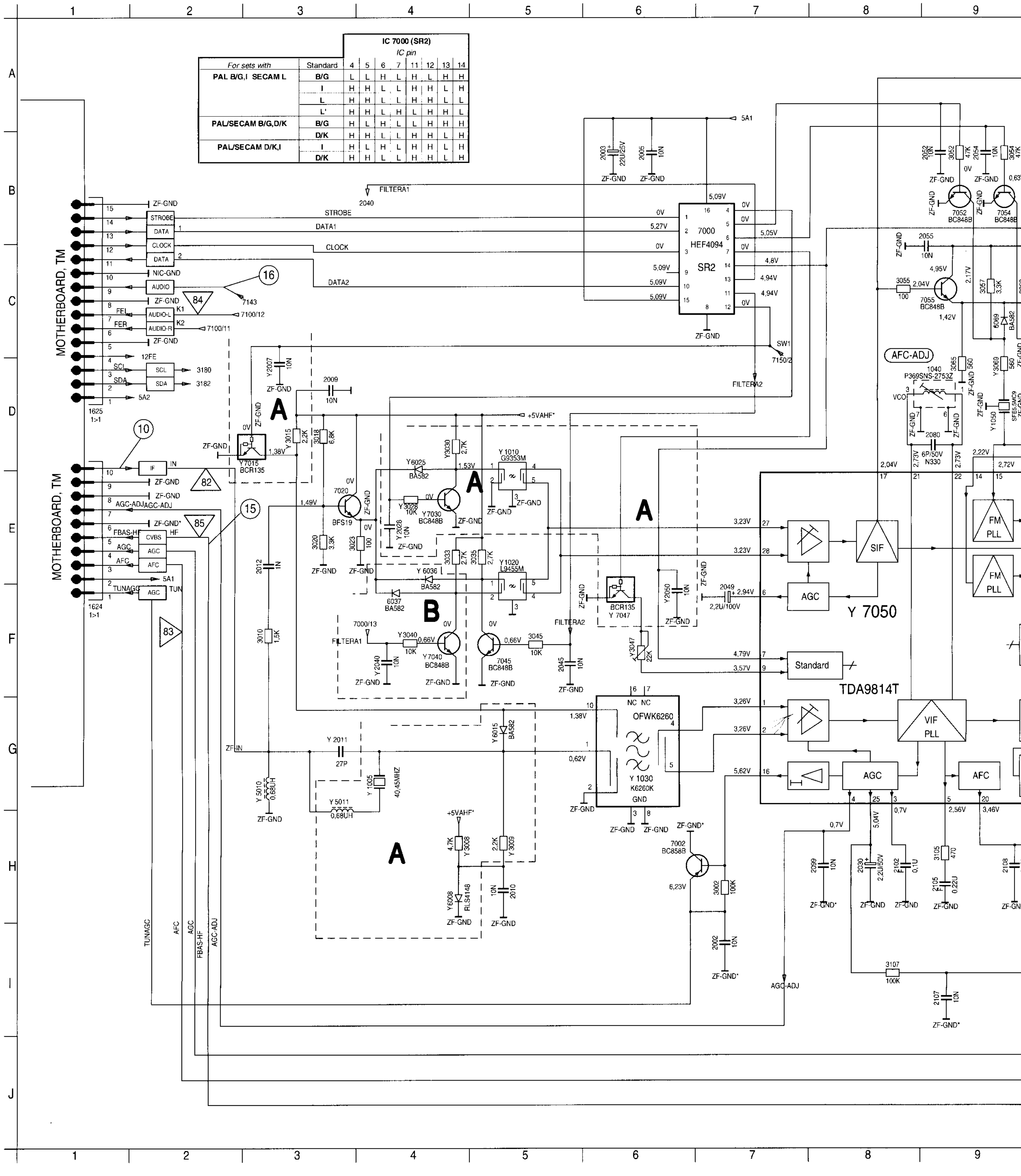


A: DC, 500mV/Div, 500us/Div
Connector 1625 Pin 9

Front End Board Multistandard (FE)

1005 G4
1010 D5
1020 E5
1025 G22
1030 G6
1040 D9
1050 D9
1060 D10
1070 D10
1080 D10
1090 G11
1100 I13
1110 H13
1120 G17
1140 F26
1624 F1
1625 D1
2002 I7
2003 B6
2005 B6
2007 D3
2009 D3
2010 H5
2011 G3
2012 E3
2028 E4
2030 H8
2040 F4
2045 F5
2049 F7
2050 F6
2052 B9
2054 B9
2055 B9
2080 D9
2085 E11
2087 F10
2088 F10
2090 F11
2092 F11
2099 H8
2102 H8
2104 D22
2105 H9
2106 D23
2107 I9
2108 H9
2117 I13
2120 C14
2123 D14
2128 E14
2130 E14
2131 E14
2133 E14
2135 E14
2137 F12
2138 G12
2143 F13
2145 F14
2147 F14
2148 G15
2159 H15
2160 G15
2162 G16
2164 H16
2165 B16
2168 B16
2170 B16
2172 B17
2175 B17
2177 B18
2190 B23
2192 C23
2195 C22
2197 C22
2200 D22
2202 D22
2210 D21
2212 E22
2214 E22
2215 F22
2218 F23
2221 E20
2228 F21
2229 F22
2235 B25
2243 B26
2247 F24
2249 F24
2251 F24
2253 G25
2255 G25
2257 F26
2259 F26
2261 F26
2263 F26
2269 B29
2270 B30
2273 C29
2274 C28
2275 C29
2285 D28
2287 E28
2290 E28
2292 E29
2294 E29
2296 E29
2298 E29
2300 E28
2302 F29
2304 F28
2306 F30
3002 H7
3008 H4
3009 H5
3010 F3
3015 D3
3018 D3
3020 E3
3023 E3
3028 E4
3030 D4
3033 E4
3035 E5
3040 F4
3045 F5
3047
3052
3054
3055
3057
3060

For sets with	Standard	IC 7000 (SR2) IC pin 4	5	6	7	11	12	13	14
PAL B/G,I SECAM L	**B/G**	L	L	H	L	H	L	H	H
	I	H	H	L	L	H	H	L	H
	L	H	H	L	L	H	H	L	L
	L'	H	H	L	H	L	H	H	L
PAL/SECAM B/G,D/K	**B/G**	H	L	H	L	L	H	H	H
	D/K	H	H	L	L	H	H	L	H
PAL/SECAM D/K,I	**I**	H	L	H	L	H	H	L	H
	D/K	H	H	L	L	H	H	L	H


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
MOTHERBOARD, TM
STROBE
DATA
CLOCK
DATA
AUDIO
AUDIO-L
AUDIO-R
SCL
SDA
ZF-GND
NIC-GND
12FE
5A2
3180
3182
7143
7100/12
7100/11
1625
1624
IF
CVBS
AGC
AFC
TUN
FBAS-HF
AGC-ADJ
TUNAGC
5A1
FILTERA1
FILTERA2
DATA1
DATA2
7000
HEF4094
SR2
SW1
7150/2
Y 7015
BCR135
7020
BFS19
Y7030
BC848B
Y7040
BC848B
7045
BC848B
Y 1010
G9353M
Y 1020
L9455M
Y6025
BA582
Y 6036
BA582
6037
BA582
Y 6015
BA582
Y6008
RLS4148
Y 1005
40,45MHZ
Y 5010
0,68UH
Y 5011
0,68UH
OFWK6260
Y 1030
K6260K
BCR135
Y 7047
7002
BC858B
+5VAHF*
AFC-ADJ
1040
P369SNS-2753Z
VCO
7052
BC848B
7054
BC848B
7055
BC848B
Y 7050
TDA9814T
SIF
AGC
Standard
VIF PLL
AFC
FM PLL
10
15
16
82
83
84
85

2253 G25
2255 G25
2257 F26
2259 F26
2261 F26
2263 F26

2269 B29
2270 B30
2273 C29
2274 C28
2275 C29
2285 D28

2287 E28
2290 E28
2292 E29
2294 E29
2296 E29
2298 E29

2300 E28
2302 F29
2304 F28
2306 F30
3002 H7
3008 H4

3009 H5
3010 F3
3015 D3
3018 D3
3020 E3
3023 E3

3028 E4
3030 D4
3033 E4
3035 E5
3040 F4
3045 F5

3047 F6
3052 B9
3054 B9
3055 C8
3057 C9
3060 C9

3065 D9
3069 D9
3070 D10
3072 D10
3074 D10
3080 D11

3097 G11
3105 H9
3107 I8
3108 H10
3110 H10
3112 I11

3114 I11
3115 H11
3117 H12
3119 C13
3120 C14
3123 D13

3125 D14
3127 D14
3137 E12
3140 F14
3143 F13
3150 H12

3152 H14
3155 H14
3157 G14
3159 H15
3160 H15
3180 E18

3182 E18
3186 H18
3199 C22
3210 D21
3214 E22
3215 E22

3220 E21
3222 F21
3224 E21
3225 F21
3228 F21
3234 C24

3235 C25
3238 C25
3240 C25
3243 B26
3253 F25
3255 F26

3267 C29
3271 C30
3273 C30
3275 C28
3277 D28
3280 C30

3282 D30
3285 D29
3300 E29
3302 E28
3304 F28
3305 G29

3306 F30
3308 E31
3309 F31
3310 G31
5010 G3
5011 G3

5092 F12
5097 F11
5117 H13
5130 E13
5150 H13
5159 H15

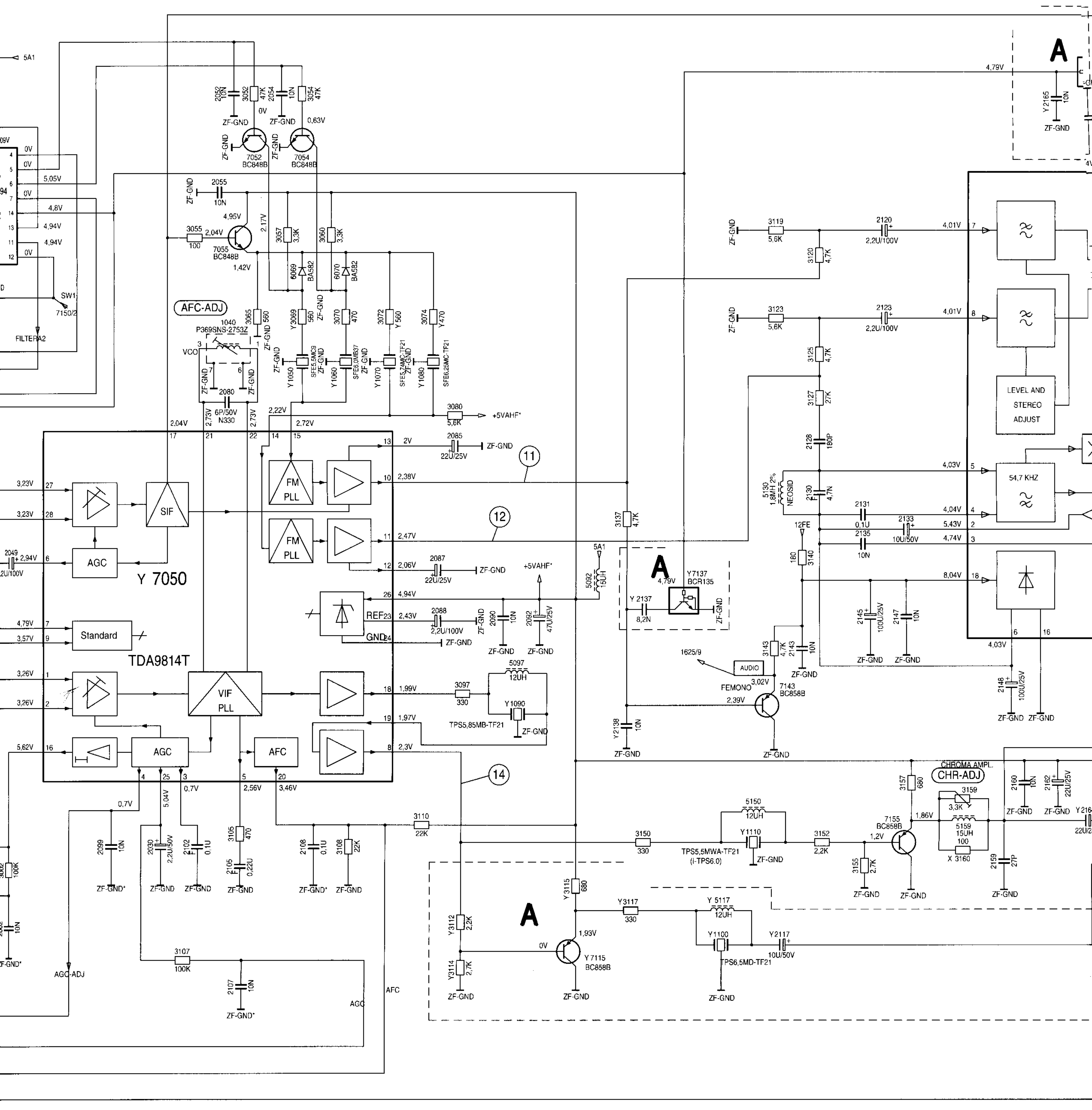
5190 B23
5210 D22
5255 G26
5263 G27
5270 B30
5285 D30

6008 H4
6015 G5
6025 D4
6036 E4
6037 F4
6069 C9

6070 C10
6243 B25
6255 G26
7000 B7
7002 H6
7015 D3

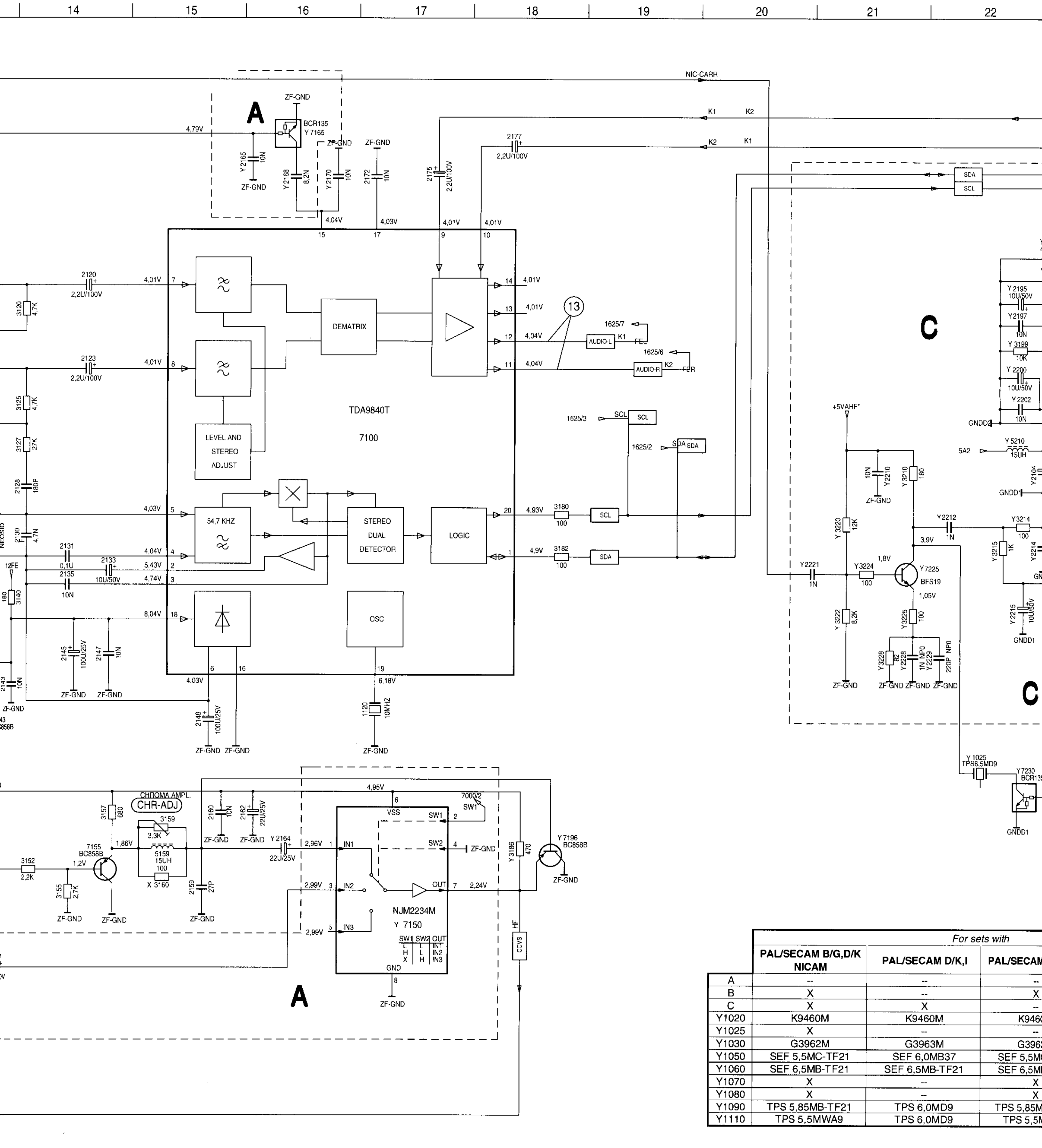
7052
7054
7055
710
711
713

7 8 9 10 11 12 13 14 15


5A1
A
4,79V
Y 2165
10N
ZF-GND
2052 10N
3052 47K
2054 10N
3054 47K
0V
0,63V
ZF-GND
7052 BC848B
7054 BC848B
09V
0V
5,05V
94
4,8V
4,94V
4,94V
SW1
7150/2
FILTERA2
ZF-GND
2055 10N
4,95V
2,17V
3055 100
2,04V
7055 BC848B
1,42V
3057 3,3K
3060 3,3K
6069 BA582
6070 BA582
AFC-ADJ
1040
P369SNS-2753Z
VCO
3065 560
Y3069 560
3070 470
3072 Y560
3074 Y470
Y1050 SFE5,5MC9
Y1060 SFE6,0MB37
Y1070 SFE5,74MC-TF21
Y1080 SFE6,25MC-TF21
2080 6P/50V N330
2,73V
2,73V
2,22V
2,72V
3080 5,6K
+5VAHF*
2,04V
17 21 22 14 15
13 2V
2085 22U/25V
ZF-GND
FM PLL
FM PLL
11
12
10 2,38V
11 2,47V
12 2,06V
2087 22U/25V
3,23V 27
3,23V 28
SIF
AGC
2049 2,94V 6
2U/100V
Y 7050
4,79V 7
3,57V 9
Standard
TDA9814T
26 4,94V
REF 23 2,43V
GND 24
2088 2,2U/100V
2090 10N
2092 47U/25V
+5VAHF*
5092 15UH
5A1
3,26V 1
3,26V 2
VIF PLL
18 1,99V
19 1,97V
8 2,3V
3097 330
5097 12UH
Y1090
TPS5,85MB-TF21
5,62V 16
AGC
AFC
4 25 3 5 20
0,7V
5,04V
0,7V
2,56V
3,46V
14
2099 10N
2030 2,2U/50V
2102 0,1U
3105 470
2105 0,22U
2108 0,1U
3108 22K
3110 22K
ZF-GND*
3002 100K
10N
AGC-ADJ
3107 100K
2107 10N
AGC
AFC
3137 4,7K
A
Y7137 BCR135
4,79V
Y 2137 8,2N
Y2138 10N
3119 5,6K
2120 2,2U/100V
4,01V 7
3120 4,7K
3123 5,6K
2123 2,2U/100V
4,01V 8
3125 4,7K
3127 27K
2128 180P
LEVEL AND STEREO ADJUST
5130 1,8MH 2% NEOSID
2130 4,7N
4,03V 5
54,7 KHZ
2131 0,1U
4,04V 4
2133 10U/50V
5,43V 2
12FE
2135 10N
4,74V 3
3140 180
8,04V 18
2145 100U/25V
2147 10N
3143 4,7K
2143 10N
1625/9
AUDIO
FEMONO
3,02V
2,39V
7143 BC858B
6 16
4,03V
2148 100U/25V
CHROMA AMPL.
CHR-ADJ
3157 680
3159 3,3K
7155 BC858B
1,86V
1,2V
5150 12UH
Y1110
3150 330
TPS5,5MWA-TF21 (i-TPS6.0)
3152 2,2K
5159 15UH 100
X 3160
2160 10N
2162 22U/25V
Y216
22U/2
3155 2,7K
2159 27P
Y3115 680
1,93V
Y3117 330
Y 5117 12UH
Y1100
TPS6,5MD-TF21
Y2117 10U/50V
A
Y3112 2,2K
Y3114 2,7K
0V
Y 7115 BC858B
ZF-GND

7 8 9 10 11 12 13 14 15

3282 D30	3306 F30	5092 F12	5190 B23	6008 H4	6070 C10	7020 E3	7052 B9	7143 G13	7225 E22
3285 D29	3308 E31	5097 F11	5210 D22	6015 G5	6243 B25	7030 E4	7054 B9	7150 H17	7230 G22
3300 E29	3309 F31	5117 H13	5255 G26	6025 D4	6255 G26	7040 F4	7055 C9	7155 H14	7275 C30
3302 E28	3310 G31	5130 E13	5263 G27	6036 E4	7000 B7	7045 F5	7100 D17	7165 B16	7275 C29
3304 F28	5010 G3	5150 H13	5270 B30	6037 F4	7002 H6	7047 F6	7115 I12	7196 H18	7305 F30
3305 G29	5011 G3	5159 H15	5285 D30	6069 C9	7015 D3	7050 F8	7137 F13	7200 D25	7305 F29

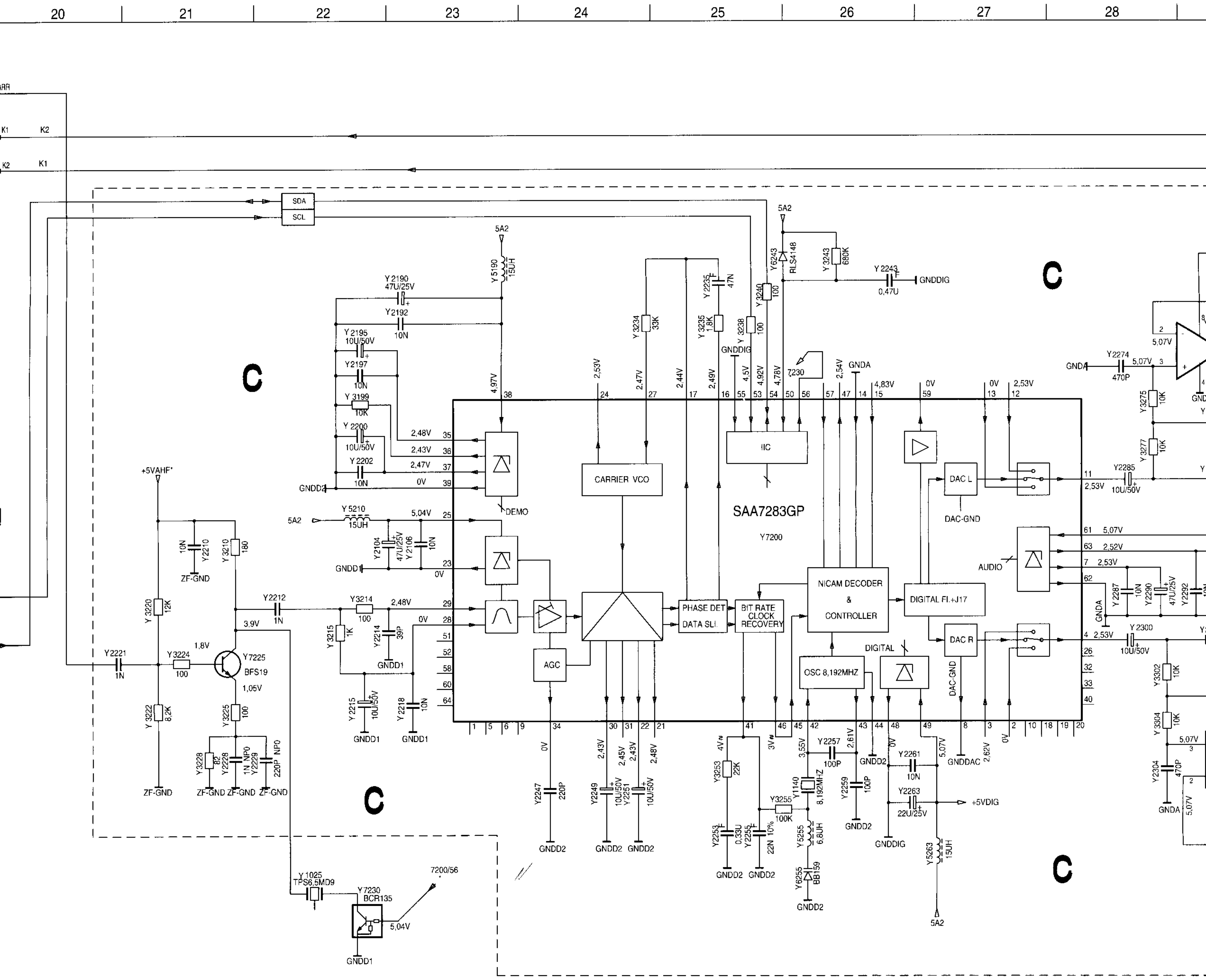

14
15
16
17
18
19
20
21
22
NIC-CARR
K1
K2
K2
K1
A
ZF-GND
BCR135
Y 7165
4,79V
Y 2165
10N
Y 2168
8,2N
Y 2170
10N
2172
10N
2175
2,2U/100V
2177
2,2U/100V
4,04V
4,03V
4,01V
4,01V
15
17
9
10
2120
2,2U/100V
4,01V
7
3120
4,7K
2123
2,2U/100V
4,01V
8
3125
4,7K
3127
27K
2128
180P
DEMATRIX
LEVEL AND
STEREO
ADJUST
TDA9840T
7100
14
4,01V
13
4,01V
12
4,04V
11
4,04V
13
1625/7
AUDIO-L
K1
FEL
1625/6
AUDIO-R
K2
FER
1625/3
SCL
1625/2
SDA
4,03V
5
54,7 KHZ
STEREO
DUAL
DETECTOR
LOGIC
20
4,93V
3180
100
SCL
1
4,9V
3182
100
SDA
2130
4,7N
NEOSID
2131
0,1U
4,04V
4
2133
10U/50V
5,43V
2
2135
10N
4,74V
3
12FE
180
3140
8,04V
18
2145
100U/25V
2147
10N
2143
10N
ZF-GND
OSC
4,03V
6
16
19
6,18V
2148
100U/25V
1120
10MHZ
C
SDA
SCL
Y 2195
10U/50V
Y 2197
10N
Y 3199
10K
Y 2200
10U/50V
Y 2202
10N
GNDD2
5A2
Y 5210
15UH
Y 2104
GNDD1
+5VAHF*
10N
Y 2210
Y 3210
180
Y 3220
12K
Y 2212
1N
3,9V
Y 3214
100
Y 3215
1K
Y 2214
Y 2221
1N
Y 3224
100
1,8V
Y 7225
BFS19
1,05V
Y 3222
8,2K
Y 3225
100
Y 3228
82
Y 2228
1N NP0
Y 2229
220P NP0
Y 2215
10U/50V
GNDD1
Y 1025
TPS6,5MD9
Y 7230
BCR135
CHROMA AMPL.
CHR-ADJ
3157
680
3159
3,3K
5159
15UH
100
X 3160
1,86V
7155
BC858B
1,2V
3152
2,2K
3155
2,7K
2160
10N
2162
22U/25V
2159
27P
Y 2164
22U/25V
4,95V
6
VSS
7000/2
SW1
SW1
2
SW2
4
2,96V
1
IN1
2,99V
3
IN2
OUT
7
2,24V
2,99V
5
IN3
NJM2234M
Y 7150
SW1 SW2 OUT
L L IN1
H L IN2
X H IN3
GND
8
Y 3186
470
Y 7196
BC858B
HF
CCVS
A

	For sets with		
	PAL/SECAM B/G,D/K NICAM	PAL/SECAM D/K,I	PAL/SECAM
A	--	--	--
B	X	--	X
C	X	X	--
Y1020	K9460M	K9460M	K946
Y1025	X	--	--
Y1030	G3962M	G3963M	G396
Y1050	SEF 5,5MC-TF21	SEF 6,0MB37	SEF 5,5M
Y1060	SEF 6,5MB-TF21	SEF 6,5MB-TF21	SEF 6,5M
Y1070	X	--	X
Y1080	X	--	X
Y1090	TPS 5,85MB-TF21	TPS 6,0MD9	TPS 5,85M
Y1110	TPS 5,5MWA9	TPS 6,0MD9	TPS 5,5M

Interconnections:

PS page 3-27	SE page 3-35	DE page
FE page 3-29/31	HC page 3-36	OS page
TM page 3-34	VS page 3-37	CC page

Note on the components: "X" comp


20
21
22
23
24
25
26
27
28
K1
K2
K2
K1
SDA
SCL
5A2
Y 5190 15UH
Y 2190 47U/25V
Y 2192 10N
Y 2195 10U/50V
Y 2197 10N
Y 3199 10K
Y 2200 10U/50V
Y 2202 10N
GNDD2
2,48V 35
2,43V 36
2,47V 37
0V 39
4,97V 38
DEMO
CARRIER VCO
SAA7283GP
Y7200
IIC
NICAM DECODER & CONTROLLER
DIGITAL FI.+J17
DAC L
DAC R
DAC-GND
AUDIO
PHASE DET
DATA SLI.
BIT RATE CLOCK RECOVERY
OSC 8,192MHZ
DIGITAL
AGC
Y 3234 33K
Y 2235 47N
Y 3235 1,8K
Y 3238 100
Y 3240 100
Y 6243 RLS4148
Y 3243 680K
Y 2243 0,47U
GNDDIG
7230
GNDA
C
+5VAHF*
Y 2210 10N
Y 3210 180
ZF-GND
Y 3220 12K
Y2212 1N
3,9V
Y 3214 100
Y 3215 1K
Y 2214 39P
GNDD1
Y 2215 10U/50V
Y 2218 10N
Y2221 1N
Y 3224 100
1,8V
Y7225 BFS19
1,05V
Y 3222 8,2K
Y 3225 100
Y 3228 82
Y 2228 1N NP0
Y 2229 220P NP0
5A2
Y 5210 15UH
5,04V 25
Y 2104 47U/25V
Y 2106 10N
0V 23
Y 1025 TPS6,5MD9
Y 7230 BCR135
7200/56
5,04V
Y 2247 220P
GNDD2
Y 2249 10U/50V
Y 2251 10U/50V
Y 3253 22K
Y 2253 0,33U
Y 2252 22N 10%
Y 3255 100K
Y 1140 8,192MHZ
Y 5255 6,8UH
Y 6255 BB159
Y 2257 100P
Y 2259 100P
Y 2261 10N
Y 2263 22U/25V
+5VDIG
Y 5263 15UH
GNDDAC
Y2274 470P
5,07V
Y 3275 10K
Y 3277 10K
Y2285 10U/50V
2,53V
5,07V
2,52V
2,53V
Y 2287 10N
Y 2290 47U/25V
Y 2300 10U/50V
Y 3302 10K
Y 3304 10K
Y 2304 470P

	For sets with			
	PAL/SECAM B/G,D/K NICAM	**PAL/SECAM D/K,I**	**PAL/SECAM B/G,D/K**	**PAL B/G,I SECAM L**
A	--	--	--	X
B	X	--	X	X
C	X	X	--	X
Y1020	K9460M	K9460M	K9460M	L9455M
Y1025	X	--	--	X
Y1030	G3962M	G3963M	G3962M	K6260K
Y1050	SEF 5,5MC-TF21	SEF 6,0MB37	SEF 5,5MC-TF21	SEF 5,5MC-TF21
Y1060	SEF 6,5MB-TF21	SEF 6,5MB-TF21	SEF 6,5MB-TF21	SEF 6,0MB37
Y1070	X	--	X	X
Y1080	X	--	X	--
Y1090	TPS 5,85MB-TF21	TPS 6,0MD9	TPS 5,85MB-TF21	TPS 5,85MB-TF21
Y1110	TPS 5,5MWA9	TPS 6,0MD9	TPS 5,5MWA9	TPS 5,5MWA9

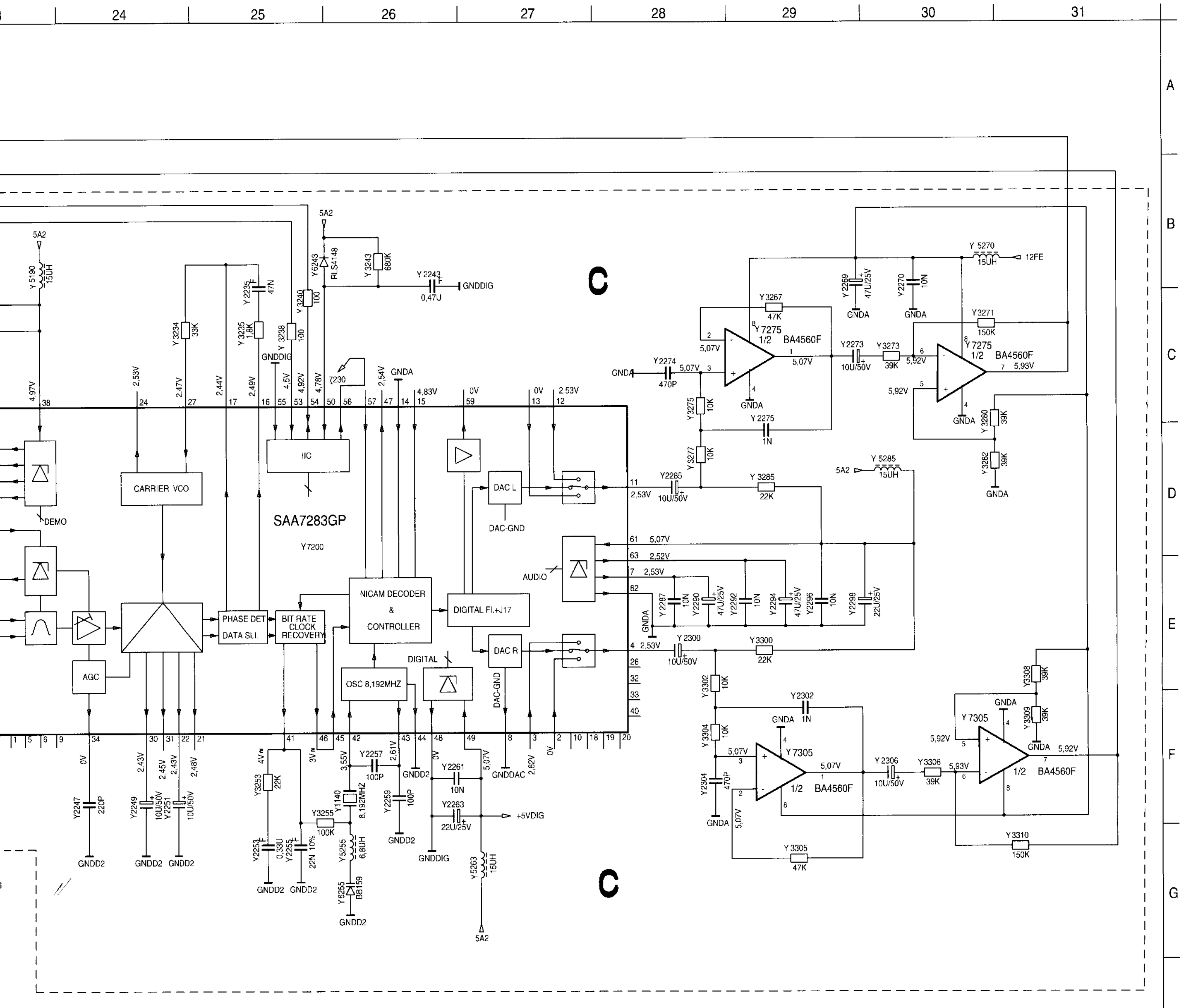
	For sets with			
	PAL/SECAM B/G,D/K NICAM	**PAL/SECAM D/K,I**	**PAL/SECAM B/G,D/K**	**PAL B/G, SECAM L**
Y2011	0	0	0	0
Y2138	10N	10N	10N	2,2N
Y2170	10N	10N	10N	2,2N
Y3047	--	--	--	X
Y3069	560	470	560	560
Y3072	X	--	X	X
Y3074	X	--	X	--
Y3186	X	X	X	--
Y5010	1,2µH	1,2µH	1,2µH	0,68µH
Y7050	TDA 9813T	TDA 9813T	TDA 9813T	TDA 9814
Y7196	X	X	X	--
Y7230	--	--	--	X

20 21 22 23 24 25 26 27 28

Interconnections:

PS page 3-27	SE page 3-35	DE page 3-38	VP page 3-41	VT page 3-46	SF page 3-53
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP page 3-54
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC page 3-57...

Note on the components: "X" components are not used "Y" components are optional


24
25
26
27
28
29
30
31
A
B
C
D
E
F
G
H
C
C
5A2
Y 5190 15UH
4.97V
38
2,53V
24
2.47V
27
2.44V
17
2,49V
16
4,5V
55
4,92V
53
4,78V
54
50
56
2,54V
57
47
GNDA
14
4,83V
15
0V
59
0V
13
2.53V
12
Y 3234 33K
Y 3235 1,8K
Y 2235 47N
Y 3238 100
Y 3240 100
Y 6243 RLS4148
Y 3243 680K
Y 2243 0,47U
GNDDIG
7230
IIC
CARRIER VCO
DEMO
SAA7283GP
Y7200
PHASE DET
DATA SLI.
BIT RATE CLOCK RECOVERY
NICAM DECODER & CONTROLLER
DIGITAL FI.+J17
OSC 8,192MHZ
DIGITAL
DAC L
DAC R
DAC-GND
AUDIO
AGC
11
2,53V
61 5,07V
63 2,52V
7 2,53V
62
4 2,53V
26
32
33
40
1
5
6
9
34
30
31
22
21
41
46
45
42
43
44
48
49
8
3
2
10
18
19
20
0V
Y2247 220P
2.43V
2,45V
2,43V
2,48V
Y2249 10U/50V
Y2251 10U/50V
GNDD2
4V
Y3253 22K
3V
3,55V
Y2257 100P
2,61V
Y1140 8,192MHZ
Y2259 100P
Y3255 100K
Y2253 0,33U
Y2255 22N 10%
Y5255 6,8UH
Y6255 BB159
Y2261 10N
Y2263 22U/25V
+5VDIG
5,07V
2,62V
GNDDAC
GNDDIG
Y5263 15UH
5A2
GNDA
Y2274 470P
5,07V
Y3275 10K
Y2275 1N
Y3277 10K
Y2285 10U/50V
Y 3285 22K
Y3267 47K
Y7275 1/2 BA4560F
5,07V
Y2269 47U/25V
Y2270 10N
Y 5270 15UH
12FE
Y2273 10U/50V
Y3273 39K
5,92V
Y3271 150K
Y7275 1/2 BA4560F
5,93V
Y3280 39K
Y3282 39K
5A2
Y 5285 15UH
Y2287 10N
Y2290 47U/25V
Y2292 10N
Y2294 47U/25V
Y2296 10N
Y2298 22U/25V
Y 2300 10U/50V
Y3300 22K
Y3302 10K
Y2302 1N
Y3304 10K
Y2304 470P
Y7305 1/2 BA4560F
5,07V
Y2306 10U/50V
Y3306 39K
5,93V
Y3308 39K
Y3309 39K
Y7305 1/2 BA4560F
5,92V
Y3310 150K
Y 3305 47K

PAL B/G,I SECAM L
X
X
X
L9455M
X
K6260K
SEF 5,5MC-TF21
SEF 6,0MB37
X
--
TPS 5,85MB-TF21
TPS 5,5MWA9

	For sets with			
	PAL/SECAM B/G,D/K NICAM	**PAL/SECAM D/K,I**	**PAL/SECAM B/G,D/K**	**PAL B/G,I SECAM L**
Y2011	0	0	0	0
Y2138	10N	10N	10N	2,2N
Y2170	10N	10N	10N	2,2N
Y3047	--	--	--	X
Y3069	560	470	560	560
Y3072	X	--	X	X
Y3074	X	--	X	--
Y3186	X	X	X	--
Y5010	1,2µH	1,2µH	1,2µH	0,68µH
Y7050	TDA 9813T	TDA 9813T	TDA 9813T	TDA 9814T
Y7196	X	X	X	--
Y7230	--	--	--	X

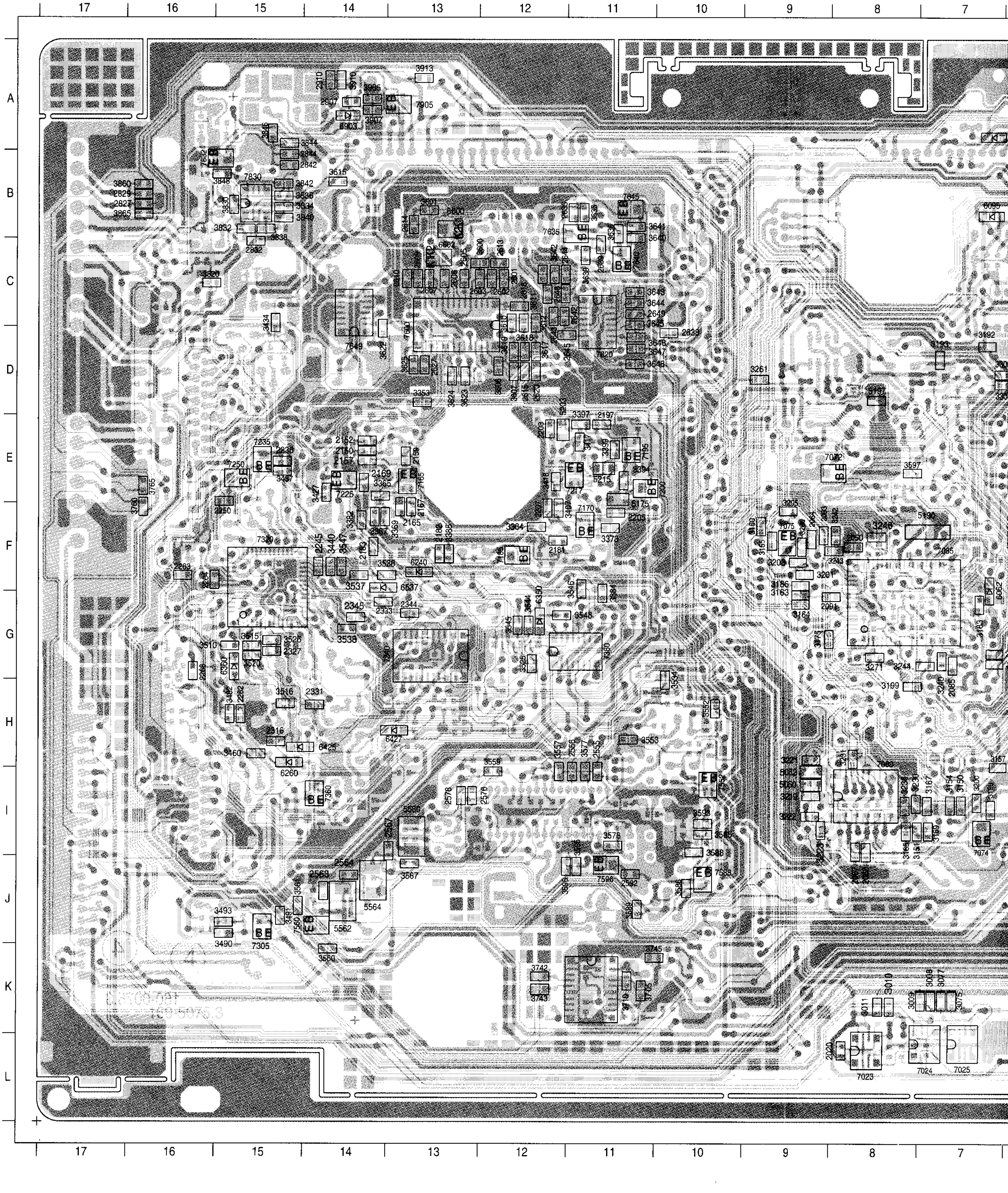
....	DC VOLTAGES FOR ALL MODUS
⟨...V⟩	DC VOLTAGES MEASURED PLAYBACK
[...V]	DC VOLTAGES MEASURED RECORD

Board

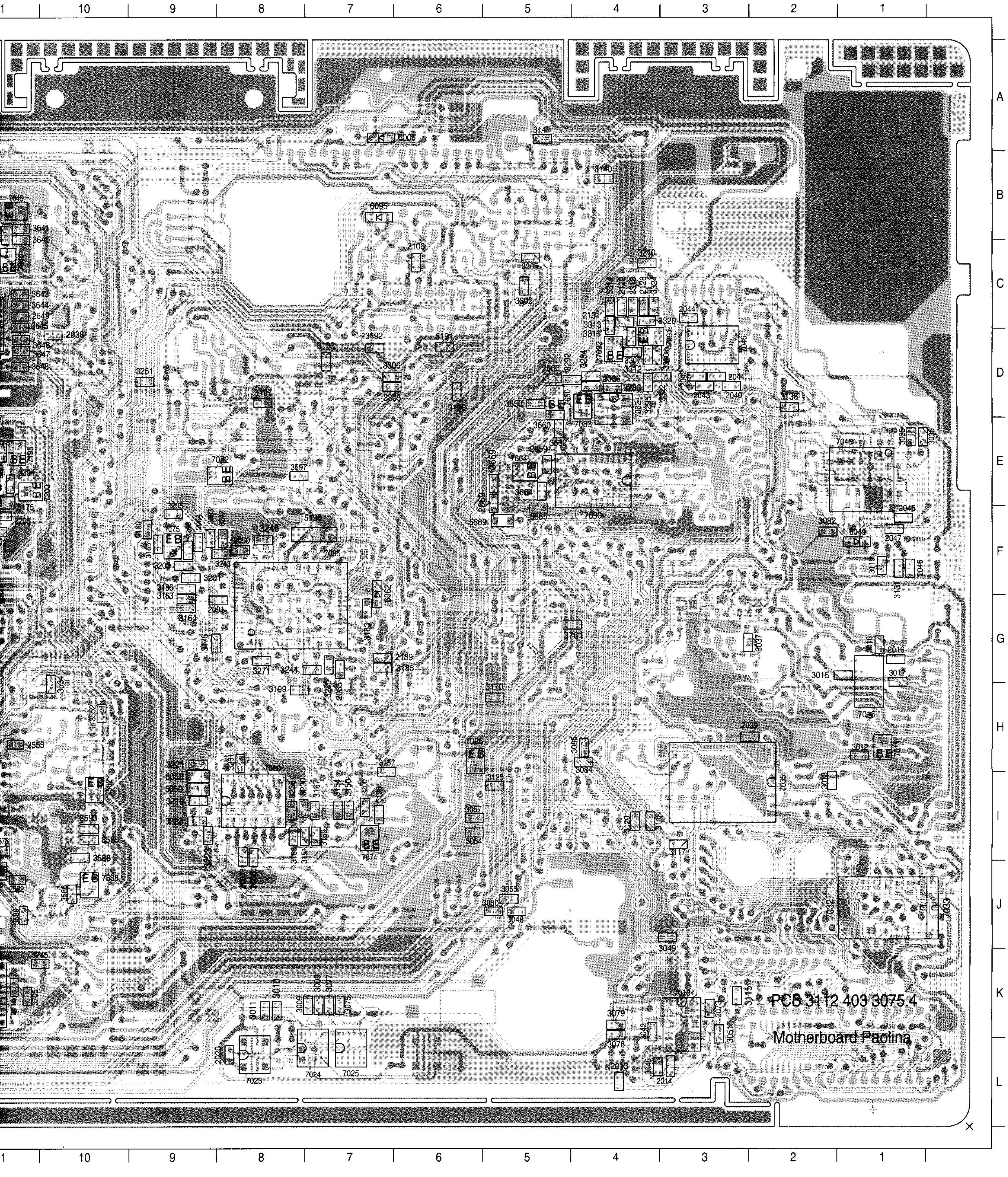
sembly

mponents side

BLACK .... Components side RED .... Solder side

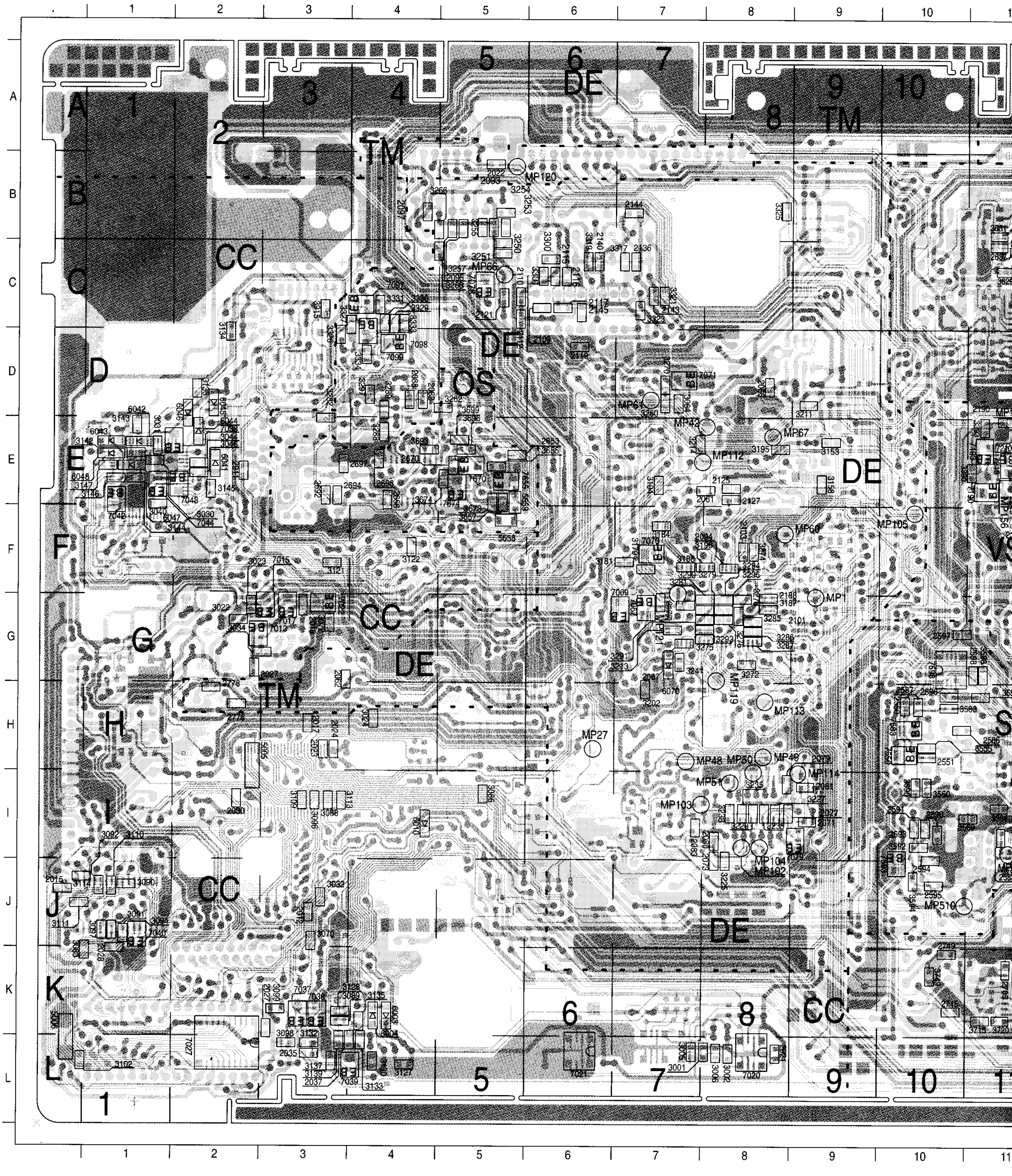

17
16
15
14
13
12
11
10
9
8
7
A
B
C
D
E
F
G
H
I
J
K
L

RED .... Solder side

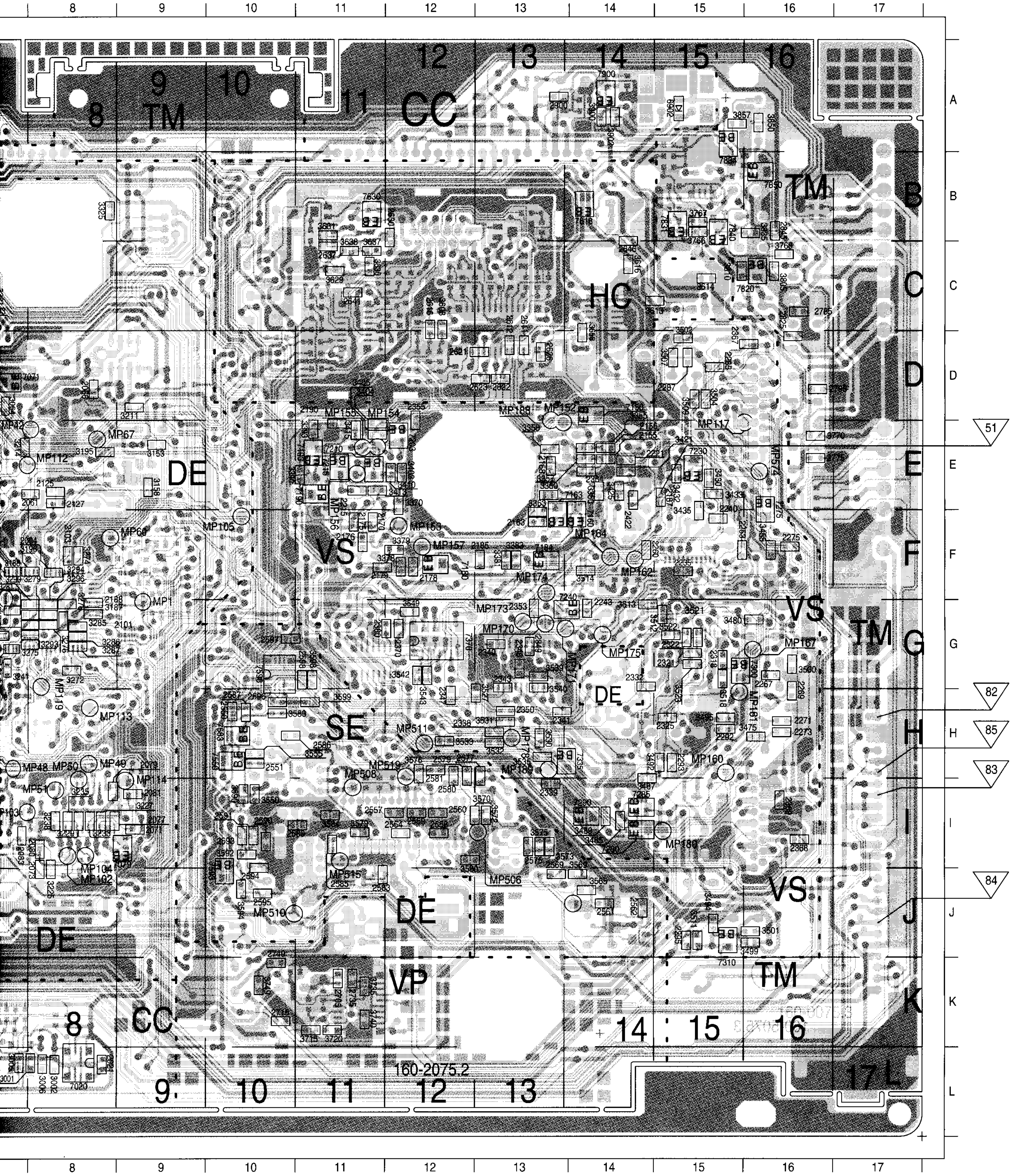

11
10
9
8
7
6
5
4
3
2
1
A
B
C
D
E
F
G
H
I
J
K
L
PCB 3112 403 3075.4
Motherboard Paolina
7045
7046
7035
7032
7023
7024
7025
7085
7690
7083
7074
7026
7019
3015
3017
3012
3049
3079
3078
2013
2014

w of solder side

BLACK .... Solder side RED .... Components side


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
H
I
J
K
L
TM
CC
DE
OS
MP120
MP66
MP61
MP42
MP67
MP112
MP105
MP60
MP1
MP119
MP113
MP27
MP48
MP50
MP49
MP51
MP114
MP103
MP104
MP192
MP510

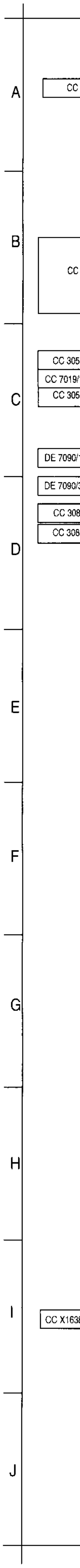
ED .... Components side

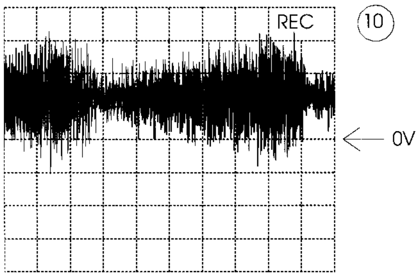

8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
TM
CC
HC
DE
VS
SE
VP
51
82
85
83
84
160-2075.2
7300
7630
7230
7240
7310
7020
MP67
MP112
MP105
MP153
MP157
MP154
MP158
MP152
MP188
MP117
MP164
MP162
MP174
MP173
MP170
MP175
MP167
MP161
MP160
MP180
MP511
MP519
MP508
MP506
MP515
MP510
MP113
MP104
MP102
MP48
MP50
MP49
MP114
MP1
MP68
MP574

XX = Testpoint

XXX = Adjustment

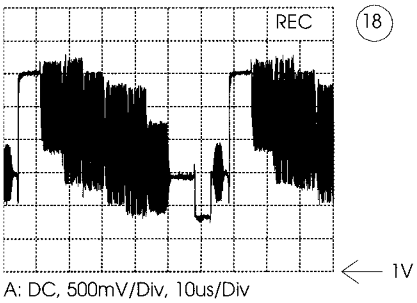
Mother





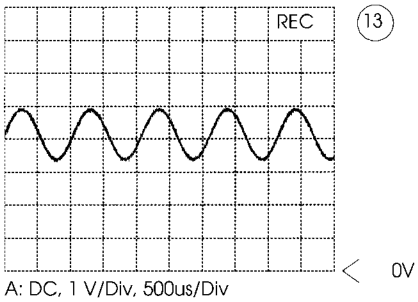
⑩

A: DC, 500mV/Div, 10us/Div
Connector 1624 Pin 10



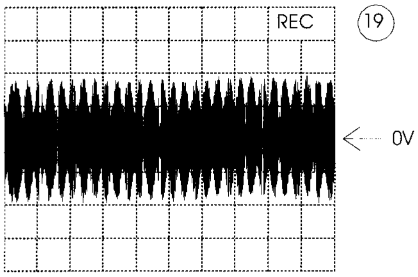
⑱

A: DC, 500mV/Div, 10us/Div
Connector 1638 Pin 7



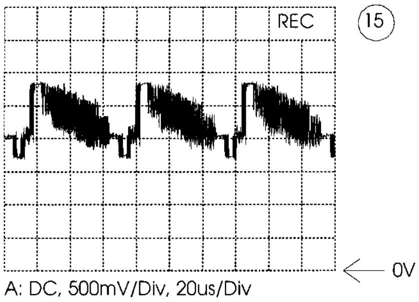
⑬

A: DC, 1 V/Div, 500us/Div
IC 7100 Pin 11/12



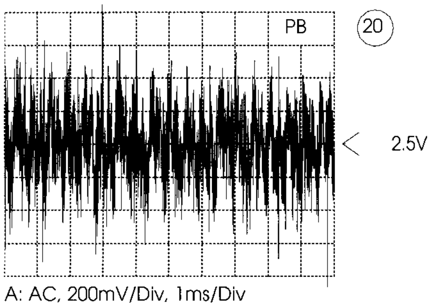
⑲

A: DC, 100mV/Div, 1ms/Div
Connector 1637 Pin 12



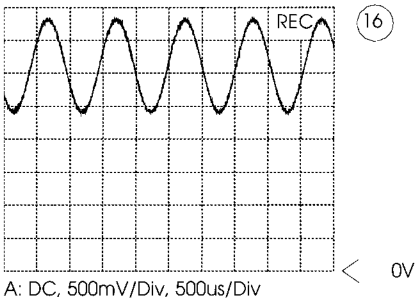
⑮

A: DC, 500mV/Div, 20us/Div
Connector 1624 Pin 5



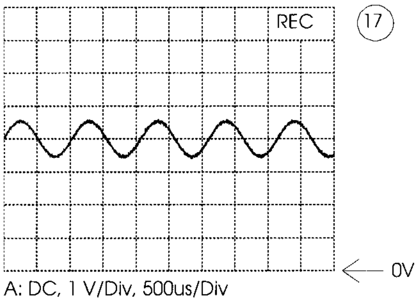
⑳

A: AC, 200mV/Div, 1ms/Div
Connector 1637 Pin 14



⑯

A: DC, 500mV/Div, 500us/Div
Connector 1625 Pin 9



⑰

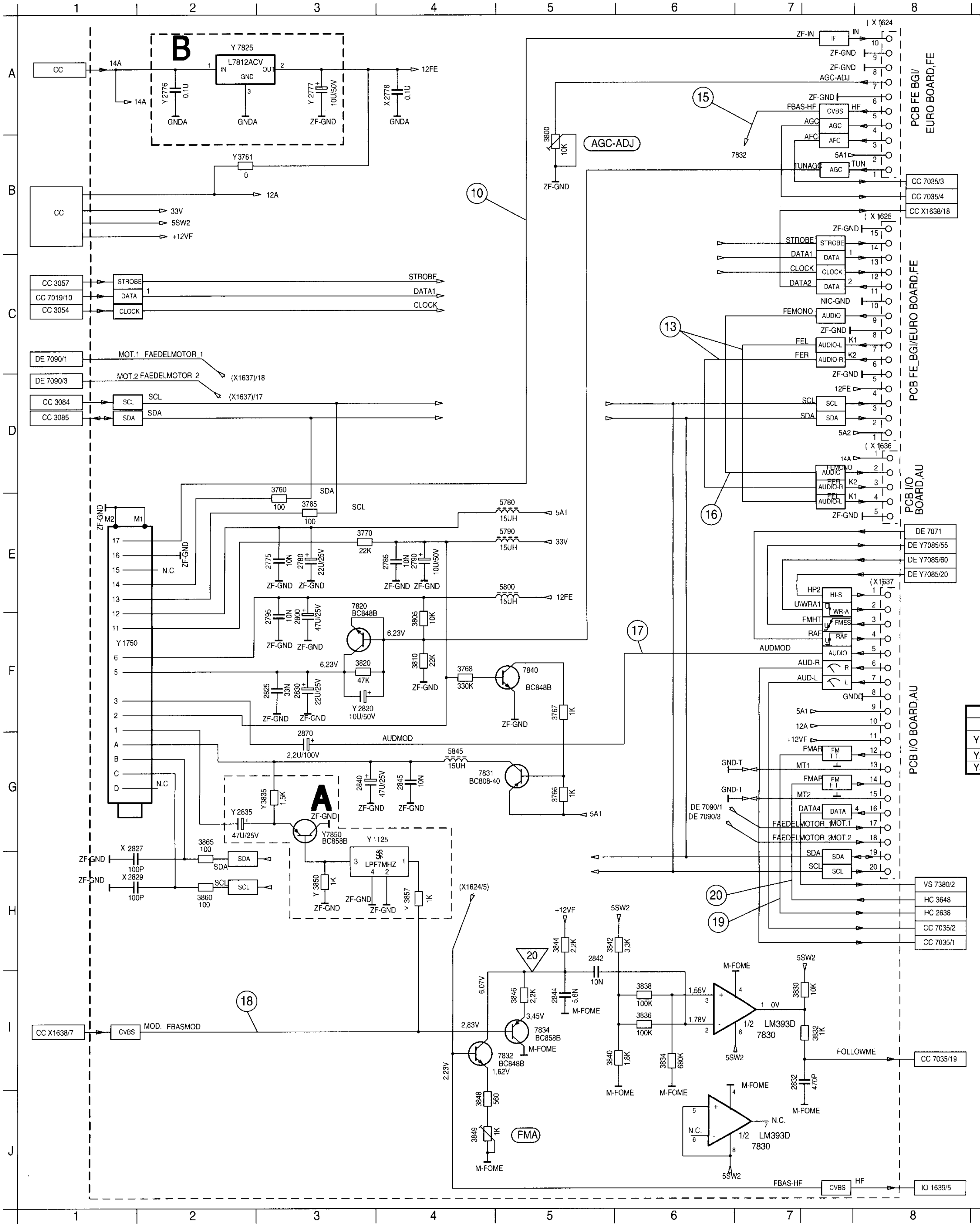
A: DC, 1 V/Div, 500us/Div
Connector 1637 Pin 5

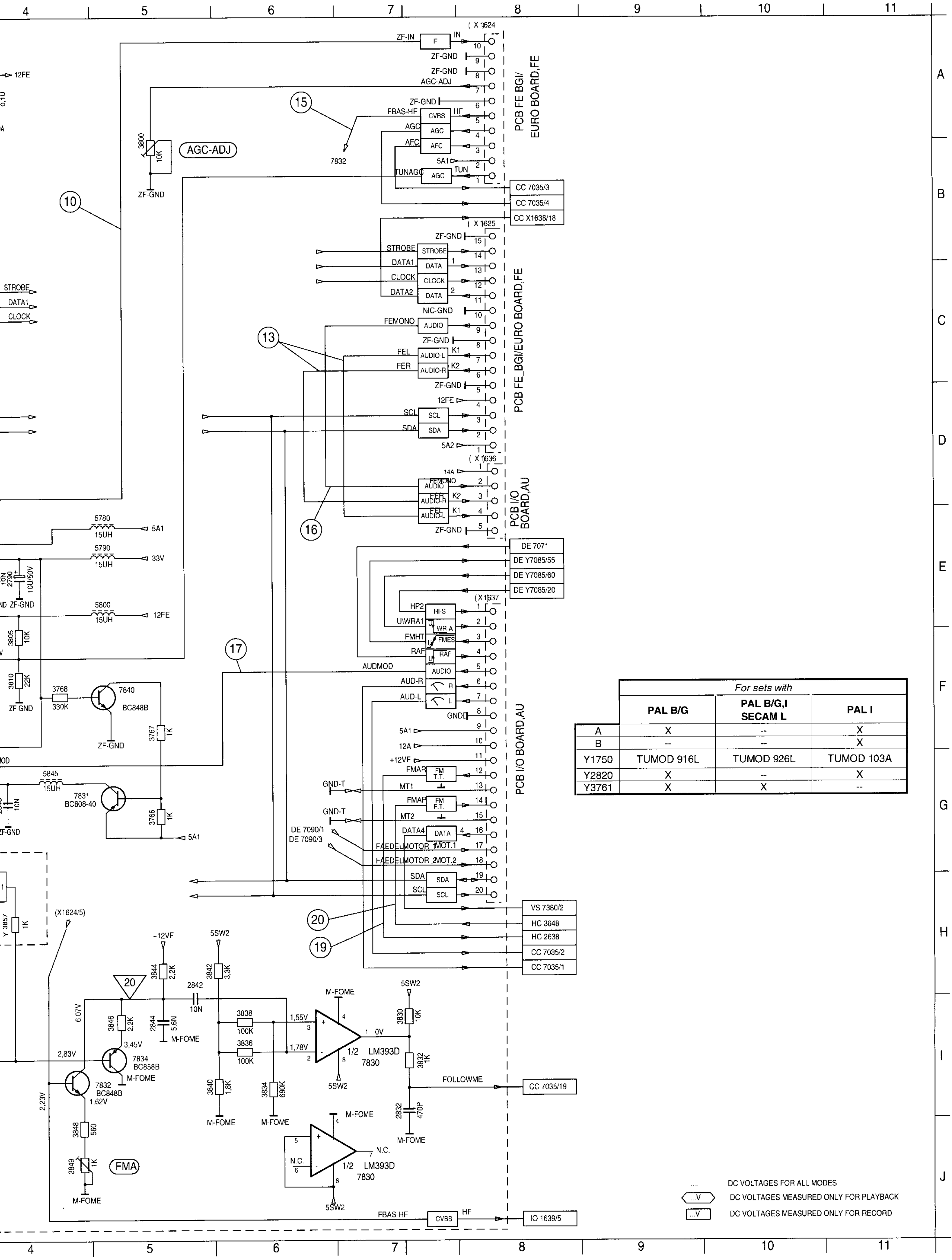
Interconnections:

PS page 3-27	SE page 3-35	DE page 3-38	VP page 3-41	VT page 3-46	SF page 3-53
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP page 3-54
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC page 3-57...

Note on the components: "X" components are not used "Y" components are optional

Mother Board - Tuner/Modulator (TM)


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
B
Y 7825
L7812ACV
IN
OUT
GND
CC
14A
Y 2776
0,1U
Y 2777
10U/50V
X 2778
0,1U
12FE
GNDA
ZF-GND
Y3761
0
CC
12A
33V
5SW2
+12VF
CC 3057
CC 7019/10
CC 3054
STROBE
DATA
CLOCK
STROBE
DATA1
CLOCK
DE 7090/1
DE 7090/3
MOT.1 FAEDELMOTOR_1
MOT.2 FAEDELMOTOR_2
(X1637)/18
(X1637)/17
CC 3084
CC 3085
SCL
SDA
3800
10K
AGC-ADJ
10
15
7832
13
16
17
18
19
20
(X 1624
ZF-IN
IF
IN
AGC-ADJ
FBAS-HF
CVBS
HF
AGC
AFC
5A1
TUNAGC
TUN
PCB FE BGI/
EURO BOARD,FE
CC 7035/3
CC 7035/4
CC X1638/18
(X 1625
STROBE
DATA1
CLOCK
DATA2
NIC-GND
FEMONO
AUDIO
FEL
FER
AUDIO-L
AUDIO-R
K1
K2
12FE
5A2
PCB FE_BGI/EURO BOARD,FE
(X 1636
14A
PCB I/O
BOARD,AU
Y 1750
M1
M2
N.C.
3760
100
3765
100
5780
15UH
5A1
5790
15UH
33V
3770
22K
2775
10N
2780
22U/25V
2785
10N
2790
10U/50V
5800
15UH
12FE
2795
10N
2800
47U/25V
7820
BC848B
6,23V
3805
10K
3810
22K
3820
47K
Y 2820
10U/50V
2825
33N
2830
22U/25V
3768
330K
7840
BC848B
3767
1K
2870
2,2U/100V
AUDMOD
5845
15UH
7831
BC808-40
2840
47U/25V
2845
10N
3766
1K
A
Y 2835
47U/25V
Y 3835
1,5K
Y7850
BC858B
Y 1125
LPF7MHZ
Y 3850
1K
Y 3857
1K
(X1624/5)
X 2827
100P
X 2829
100P
3865
100
3860
100
DE 7071
DE Y7085/55
DE Y7085/60
DE Y7085/20
(X1637
HP2
HI-S
U\WRA1
WR-A
FMHT
FMES
RAF
AUDMOD
AUD-R
AUD-L
R
L
GND
12A
+12VF
FMAR
FM T.T.
MT1
GND-T
FMAP
FM F.T.
MT2
DATA4
FAEDELMOTOR_1
FAEDELMOTOR_2
PCB I/O BOARD,AU
VS 7380/2
HC 3648
HC 2638
CC 7035/2
CC 7035/1
CC X1638/7
CVBS
MOD. FBASMOD
+12VF
5SW2
3844
2,2K
3842
3,3K
2842
10N
2844
5,6N
M-FOME
3846
2,2K
6,07V
3,45V
7834
BC858B
2,83V
7832
BC848B
1,62V
2,23V
3848
560
3849
1K
FMA
3838
100K
3836
100K
1,55V
1,78V
3840
1,8K
3834
680K
LM393D
7830
1/2
0V
3830
10K
3832
1K
FOLLOWME
CC 7035/19
2832
470P
N.C.
FBAS-HF
IO 1639/5


4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
(X 1624
ZF-IN
IF
IN
ZF-GND
ZF-GND
AGC-ADJ
ZF-GND
FBAS-HF
CVBS
HF
AGC
AFC
5A1
TUNAGC
TUN
PCB FE BGI/
EURO BOARD,FE
12FE
3800
10K
ZF-GND
AGC-ADJ
7832
CC 7035/3
CC 7035/4
CC X1638/18
(X 1625
STROBE
DATA1
CLOCK
DATA2
DATA
NIC-GND
FEMONO
AUDIO
FEL
FER
AUDIO-L
AUDIO-R
K1
K2
12FE
SCL
SDA
5A2
PCB FE_BGI/EURO BOARD,FE
(X 1636
14A
PCB I/O
BOARD,AU
5780
15UH
5A1
5790
15UH
33V
2790
10U/50V
10N
5800
15UH
12FE
3805
10K
3810
22K
3768
330K
7840
BC848B
3767
1K
ZF-GND
DE 7071
DE Y7085/55
DE Y7085/60
DE Y7085/20
(X 1637
HP2
HI-S
U\WRA1
WR-A
FMHT
FMES
RAF
AUDMOD
AUD-R
AUD-L
GNDD
5A1
12A
+12VF
FMAR
FM T.T.
MT1
FMAP
FM F.T.
MT2
GND-T
DATA4
DE 7090/1
DE 7090/3
FAEDELMOTOR_1
MOT.1
FAEDELMOTOR_2
MOT.2
PCB I/O BOARD,AU
5845
15UH
7831
BC808-40
3766
1K
5A1
VS 7380/2
HC 3648
HC 2638
CC 7035/2
CC 7035/1
(X1624/5)
3857
1K
+12VF
5SW2
3844
2,2K
3842
3,3K
2842
10N
2844
5,6N
M-FOME
3846
2,2K
6,07V
3,45V
2,83V
7834
BC858B
7832
BC848B
1,62V
2,23V
3848
560
3849
1K
FMA
3838
100K
3836
100K
1,55V
1,78V
3840
1,8K
3834
680K
LM393D
1/2
7830
0V
5SW2
3830
10K
3832
1K
FOLLOWME
CC 7035/19
2832
470P
N.C.
FBAS-HF
CVBS
HF
IO 1639/5
10
13
15
16
17
19
20

	For sets with		
	PAL B/G	**PAL B/G,I SECAM L**	**PAL I**
A	X	--	X
B	--	--	X
Y1750	TUMOD 916L	TUMOD 926L	TUMOD 103A
Y2820	X	--	X
Y3761	X	X	--

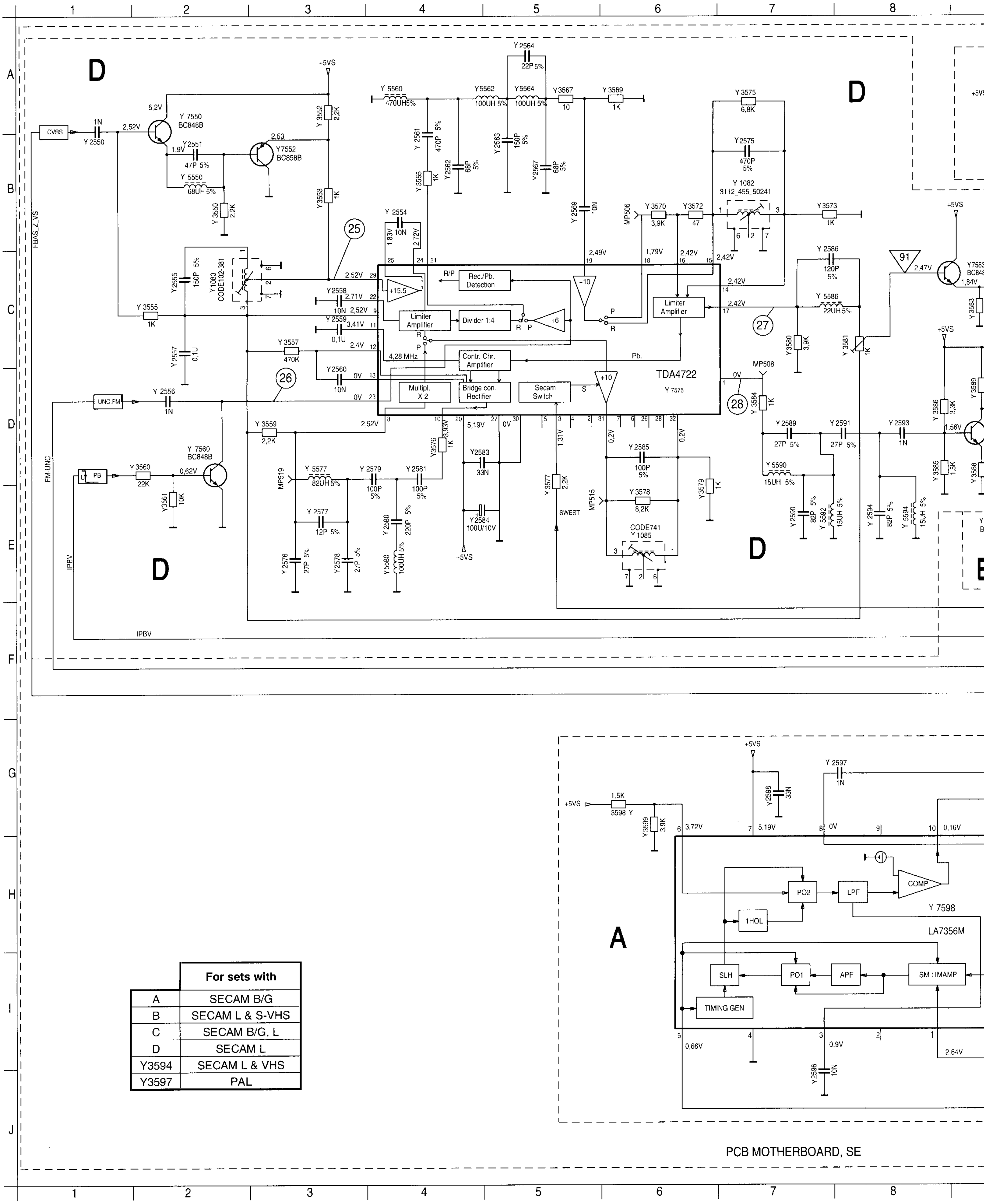
.... DC VOLTAGES FOR ALL MODES

⟨...V⟩ DC VOLTAGES MEASURED ONLY FOR PLAYBACK

[...V] DC VOLTAGES MEASURED ONLY FOR RECORD

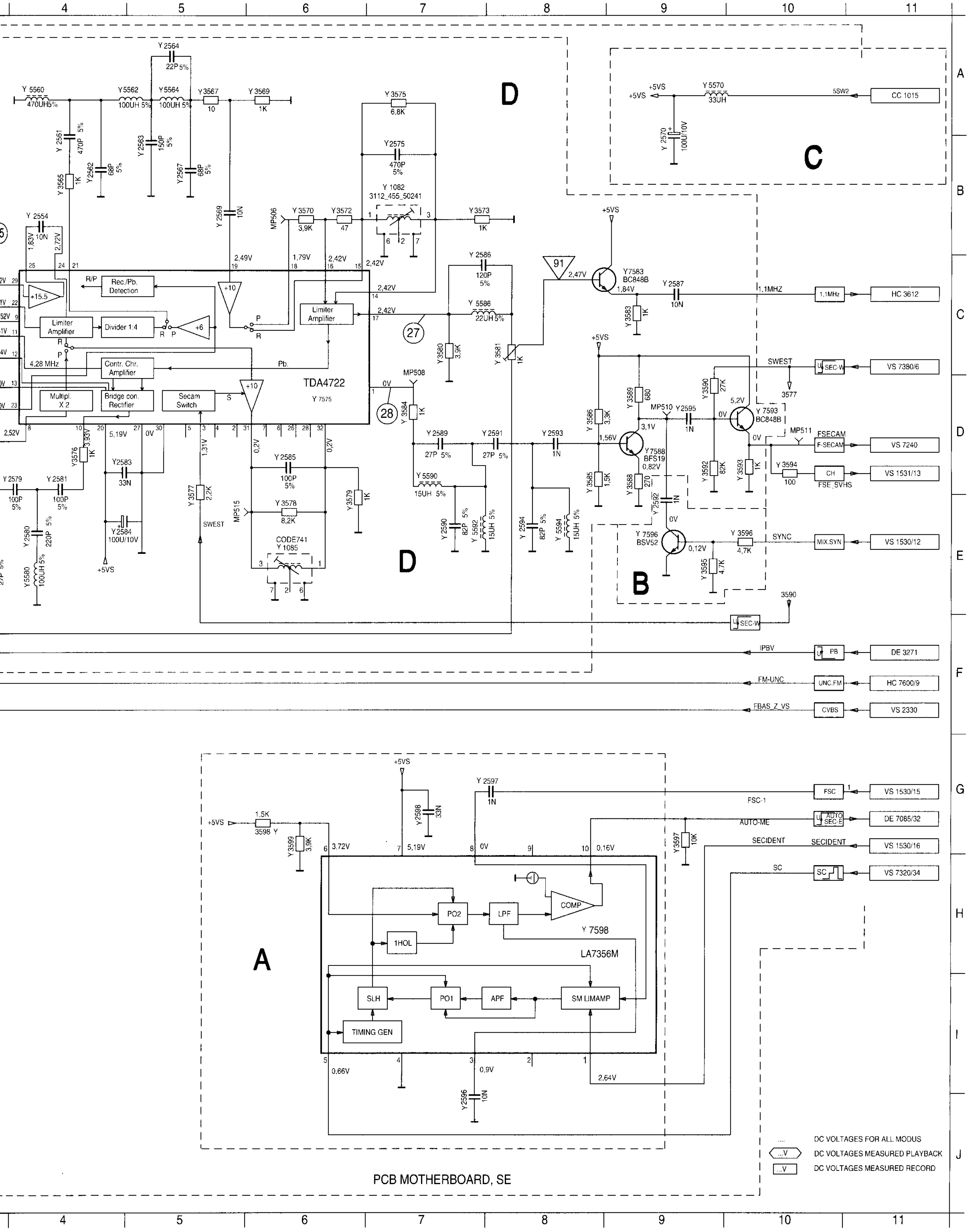
1125	G4
1624	A8
1625	B8
1636	D8
1637	E8
1750	F1
2775	E3
2776	A2
2777	A3
2778	A4
2780	E3
2785	E4
2790	E4
2795	F3
2800	F3
2820	F3
2825	F3
2827	H1
2829	H1
2830	F3
2832	I7
2835	G2
2840	G3
2842	H5
2844	I5
2845	G4
2870	G3
3760	D3
3761	B2
3765	E3
3766	G5
3767	F5
3768	F4
3770	E3
3800	B5
3805	F4
3810	F4
3820	F3
3830	I7
3832	I7
3834	I6
3835	G3
3836	I6
3838	I6
3840	I5
3842	H5
3844	H5
3846	I5
3848	J4
3849	J4
3850	H3
3857	H4
3860	H2
3865	G2
5780	E5
5790	E5
5800	E5
5845	G4
7820	E3
7825	A2
7830	J7
7830	I7
7831	G4
7832	I5
7834	I5
7840	F5
7850	G3

Mother Board - SECAM Processing (SE)


D
CVBS
Y 2550 1N
2,52V
5,2V
Y 7550 BC848B
Y 2551 47P 5%
1,9V
2,53
Y7552 BC858B
Y 5550 68UH 5%
Y 3550 2,2K
+5VS
Y 3552 2,2K
Y 3553 1K
25
FBAS_Z_VS
Y 2555 150P 5%
Y1080 CODE102-381
Y 3555 1K
Y 2557 0,1U
Y 3557 470K
26
Y 2556 1N
UNC.FM
FM-UNC
Y 3559 2,2K
Y 7560 BC848B
PB
Y 3560 22K
0,62V
Y3561 10K
IPBV
Y 5560 470UH5%
Y 2564 22P 5%
Y5562 100UH 5%
Y5564 100UH 5%
Y3567 10
Y 3569 1K
Y 2561 470P 5%
Y 2562 68P 5%
Y 2563 150P 5%
Y2567 68P 5%
Y 3565 1K
Y 2554 10N
Y 2569 10N
Y2558 10N
Y2559 0,1U
Y2560 10N
Rec./Pb. Detection
R/P
+15.5
Limiter Amplifier
Divider 1:4
÷6
+10
4,28 MHz
Contr. Chr. Amplifier
Multipl. X 2
Bridge con. Rectifier
Secam Switch
TDA4722
Y 7575
Pb.
MP506
Y 3570 3,9K
Y 3572 47
Y 3575 6,8K
Y2575 470P 5%
Y 1082 3112_455_50241
Y3573 1K
27
Y 2566 120P 5%
Y 5586 22UH 5%
Y3580 3,9K
Y 3581 1K
91
Y7583
MP508
28
Y 3584 1K
Y 2589 27P 5%
Y 2591 27P 5%
Y 2593 1N
Y 5590 15UH 5%
Y 2590 82P 5%
Y 5592 15UH 5%
Y 2594 82P 5%
Y 5594 15UH 5%
Y 3585 1,5K
Y 3586 3,3K
MP519
Y 5577 82UH 5%
Y 2577 12P 5%
Y 2576 27P 5%
Y 2578 27P 5%
Y 2579 100P 5%
Y 2581 100P 5%
Y 2580 220P 5%
Y5580 100UH 5%
Y3576 1K
Y2583 33N
Y2584 100U/10V
Y 3577 2,2K
SWEST
MP515
Y 2585 100P 5%
Y 3578 8,2K
Y3579 1K
CODE741 Y 1085
A
+5VS
Y 3598 1,5K
Y 3599 3,9K
Y 2598 33N
Y 2597 1N
PO2
LPF
COMP
1HOL
Y 7598
LA7356M
SLH
PO1
APF
SM LIMAMP
TIMING GEN
Y 2596 10N
PCB MOTHERBOARD, SE

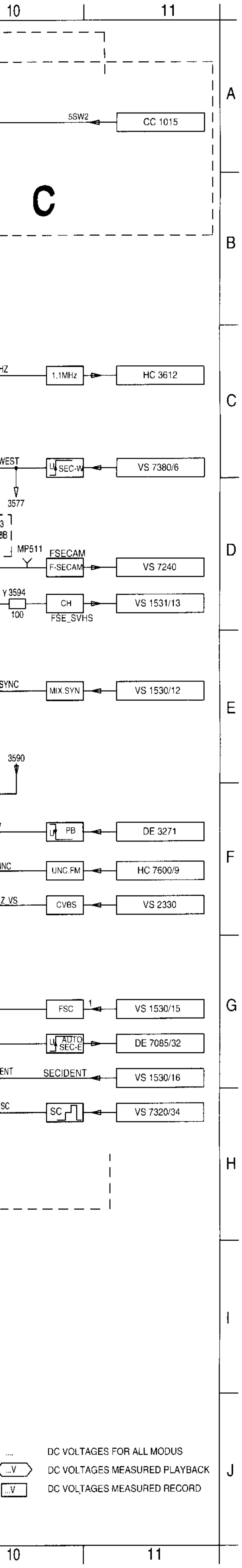
	For sets with
A	SECAM B/G
B	SECAM L & S-VHS
C	SECAM B/G, L
D	SECAM L
Y3594	SECAM L & VHS
Y3597	PAL

E)

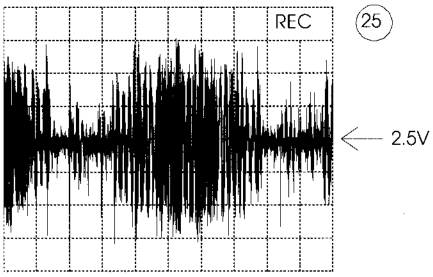

D
C
B
A
D
TDA4722
Y 7575
LA7356M
Y 7598
Limiter Amplifier
Divider 1:4
Rec./Pb. Detection
Contr. Chr. Amplifier
Multipl. X 2
Bridge con. Rectifier
Secam Switch
Limiter Amplifier
+15,5
+6
+10
+10
R/P
4,28 MHz
Pb.
PO2
LPF
COMP
1HOL
SLH
PO1
APF
SM LIMAMP
TIMING GEN
Y 7583 BC848B
Y 7593 BC848B
Y 7588 BFS19
Y 7596 BSV52
Y 1082 3112_455_50241
CODE741 Y 1085
CC 1015
HC 3612
VS 7380/6
VS 7240
VS 1531/13
VS 1530/12
DE 3271
HC 7600/9
VS 2330
VS 1530/15
DE 7065/32
VS 1530/16
VS 7320/34
1,1MHz
SEC-W
F-SECAM
CH
MIX.SYN
PB
UNC.FM
CVBS
FSC
AUTO SEC-E
SC
SWEST
FSECAM
FSE_SVHS
SYNC
IPBV
FM-UNC
FBAS_Z_VS
FSC-1
AUTO-ME
SECIDENT
+5VS
5SW2
MP506
MP508
MP510
MP511
MP515
27
28
91
3577
3590
.... DC VOLTAGES FOR ALL MODUS
⟨...V⟩ DC VOLTAGES MEASURED PLAYBACK
[...V] DC VOLTAGES MEASURED RECORD

PCB MOTHERBOARD, SE

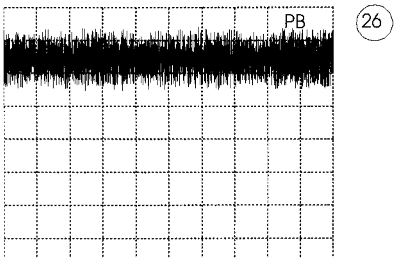
1080	C3
1082	B8
1085	E7
2550	B2
2551	B3
2554	B5
2555	C3
2556	D3
2557	C3
2558	C4
2559	C4
2560	D4
2561	B5
2562	B5
2563	B5
2564	A6
2567	B6
2569	B6
2570	B10
2575	B8
2576	E4
2577	E4
2578	E4
2579	D4
2580	E4
2581	D5
2583	D5
2584	E5
2585	D7
2586	C8
2587	C10
2589	D8
2590	E8
2591	D8
2592	E10
2593	D9
2594	E9
2595	D10
2596	J8
2597	G8
2598	G8
3550	B3
3552	A4
3553	B4
3555	C2
3557	C4
3559	D3
3560	D2
3561	E3
3565	B5
3567	A6
3569	A6
3570	B7
3572	B7
3573	B8
3575	A8
3576	D5
3577	E6
3578	E7
3579	E7
3580	C8
3581	C8
3583	C9
3584	D8
3585	D9
3586	D9
3588	D9
3589	D9
3590	D10
3592	D10
3593	D10
3594	D11
3595	E10
3596	E10
3597	G10
3598	G6
3599	G7
5550	B3
5560	A4
5562	A5
5564	A6
5570	A10
5577	D4
5580	E4
5586	C8
5590	D8
5592	E8
5594	E9
7550	A3
7552	B4
7560	D3
7575	D7
7583	C9


10
11
A
5SW2
CC 1015
C
B
HZ
1,1MHz
HC 3612
C
WEST
SEC-W
VS 7380/6
3577
MP511
FSECAM
F-SECAM
VS 7240
D
Y 3594
100
CH
FSE_SVHS
VS 1531/13
SYNC
MIX.SYN
VS 1530/12
E
3590
PB
DE 3271
F
UNC
UNC.FM
HC 7600/9
Z_VS
CVBS
VS 2330
FSC
1
VS 1530/15
G
AUTO SEC-E
DE 7085/32
ENT
SECIDENT
VS 1530/16
SC
SC
VS 7320/34
H
I
DC VOLTAGES FOR ALL MODUS
DC VOLTAGES MEASURED PLAYBACK
DC VOLTAGES MEASURED RECORD
J
10
11

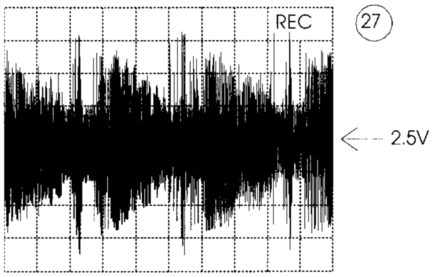
1080	C3
1082	B8
1085	E7
2550	B2
2551	B3
2554	B5
2555	C3
2556	D3
2557	C3
2558	C4
2559	C4
2560	D4
2561	B5
2562	B5
2563	B5
2564	A6
2567	B6
2569	B6
2570	B10
2575	B8
2576	E4
2577	E4
2578	E4
2579	D4
2580	E4
2581	D5
2583	D5
2584	E5
2585	D7
2586	C8
2587	C10
2589	D8
2590	E8
2591	D8
2592	E10
2593	D9
2594	E9
2595	D10
2596	J8
2597	G8
2598	G8
3550	B3
3552	A4
3553	B4
3555	C2
3557	C4
3559	D3
3560	D2
3561	E3
3565	B5
3567	A6
3569	A6
3570	B7
3572	B7
3573	B8
3575	A8
3576	D5
3577	E6
3578	E7
3579	E7
3580	C8
3581	C8
3583	C9
3584	D8
3585	D9
3586	D9
3588	D9
3589	D9
3590	D10
3592	D10
3593	D10
3594	D11
3595	E10
3596	E10
3597	G10
3598	G6
3599	G7
5550	B3
5560	A4
5562	A5
5564	A6
5570	A10
5577	D4
5580	E4
5586	C8
5590	D8
5592	E8
5594	E9
7550	A3
7552	B4
7560	D3
7575	D7
7583	C9
7588	D10
7593	D11
7596	E10
7598	H9
MP506	B6
MP508	D7
MP510	D9
MP511	D10
MP515	E6
MP519	D3



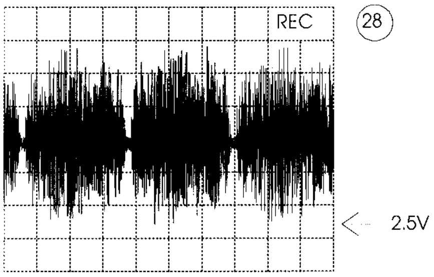
A: AC, 50mV/Div, 10us/Div
IC 7575 Pin 29



A: DC, 500mV/Div, 20us/Div
IC7575, Pin 23



A: AC, 200mV/Div, 20us/Div
IC7575, Pin 17



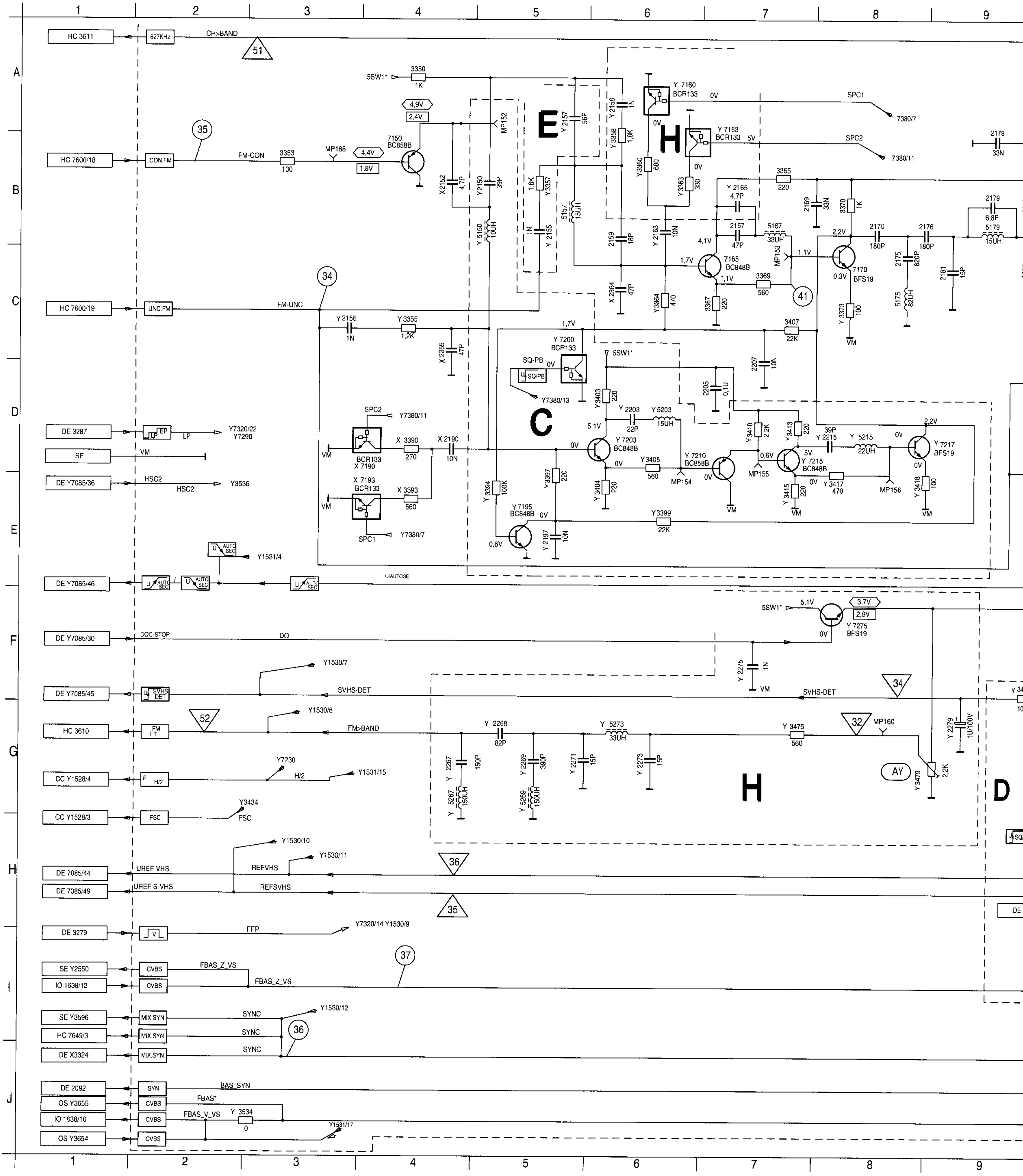
A: AC, 10 V/Div, 20us/Div
IC7575, Pin 1

Interconnections:

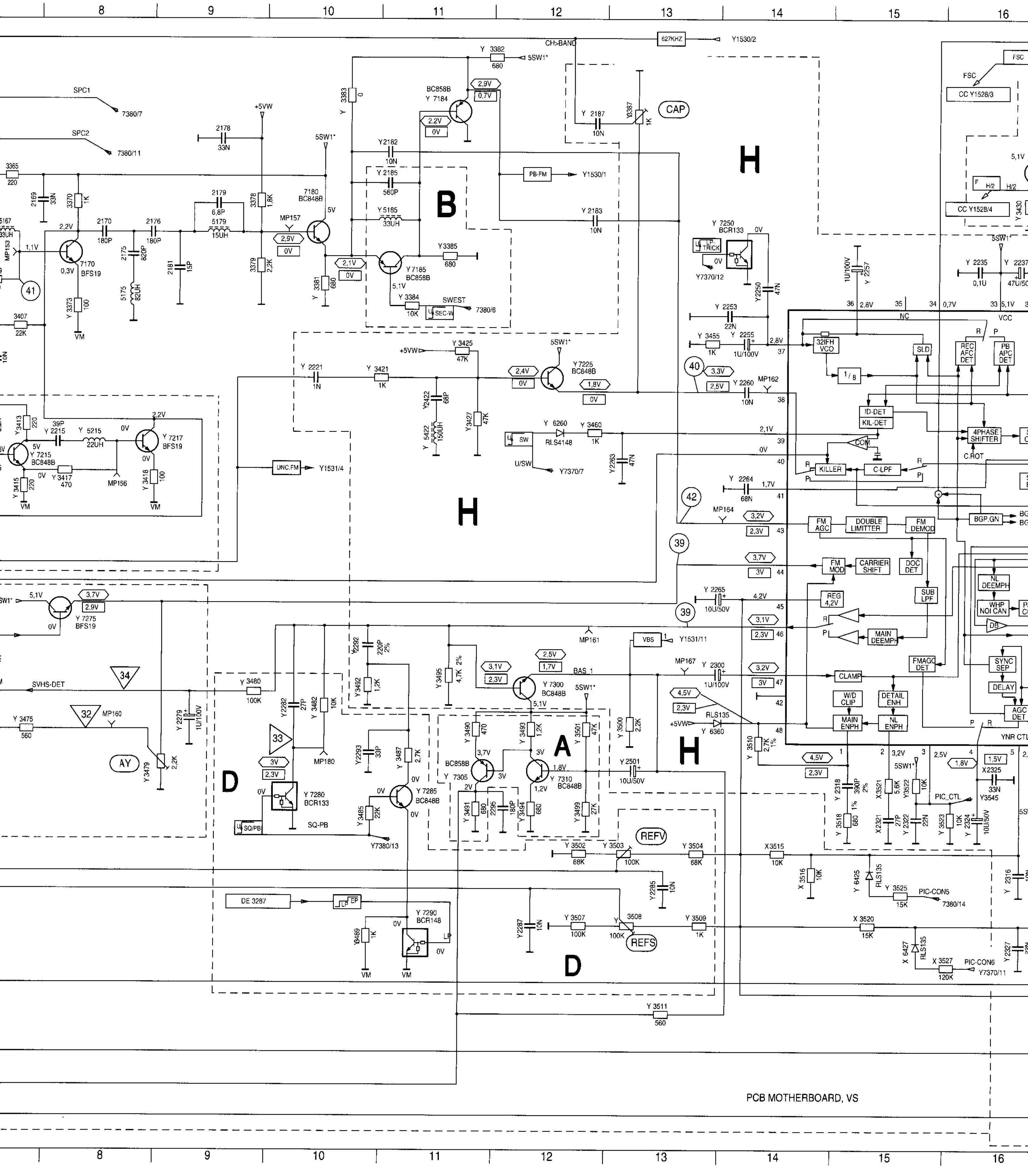
PS page 3-27	SE page 3-35	DE page 3-38	VP page 3-41	VT page 3-46	SF page 3-53
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP page 3-54
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC page 3-57...
Note on the components: "X" components are not used "Y" components are optional					

Mother Board - Video Signal Processing (VS)

1060 C18
1530 A29
1531 D29
2150 B5
2152 B4
2155 B5
2156 C3
2157 A5
2158 A6
2159 B6
2163 B6
2165 B7
2167 B7
2169 B7
2170 B8
2175 C8
2176 B8
2178 B9
2179 B9
2181 C9
2182 B11
2183 B12
2185 B11
2187 A12
2190 D4
2197 E5
2203 D6
2205 D7
2207 D7
2215 D8
2221 D10
2233 B17
2235 C16
2236 B17
2237 C16
2240 C17
2243 B19
2245 B19
2250 C14
2253 C14
2255 C14
2257 C15
2260 D14
2263 D13
2264 E14
2265 F13
2267 G4
2268 G5
2269 G5
2271 G5
2273 G6
2275 F7
2279 G9
2282 G10
2285 H13
2287 I12
2292 F10
2293 G10
2295 G12
2300 F13
2316 H16
2318 G15
2321 H15
2322 H15
2324 H16
2325 G16
2327 I16
2330 I17
2331 G17
2332 G17
2333 E20
2334 E20
2336 G20
2337 G18
2338 H18
2339 J19
2340 D22
2341 D22
2342 D22
2343 D23
2344 E20
2345 E20
2346 G20
2347 D24
2348 F24
2349 G24
2350 F24
2353 G24
2355 C4
2360 B23
2364 C6
2367 D27
2368 E27
2369 E28
2370 G27
2380 H26
2395 F20
2422 D11
2501 G13
3350 A4
3353 B3
3355 C4
3357 B5
3358 B6
3360 B6
3363 B6
3364 C6
3365 B7
3367 C7
3369 C7
3370 B8
3373 C8
3378 B9
3379 C9
3381 C10
3382 A12
3383 A10
3384 C11
3385 C11
3387 A13
3390 D4
3393 E4
3394 E5
3397 E5
3399 E6
3403 D6


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
HC 3611
627KHz
CH>BAND
51
5SW1*
3350
1K
4,9V
2,4V
MP152
MP188
4,4V
1,8V
7150
BC858B
HC 7600/18
CON.FM
FM-CON
3353
100
35
X2152
4,7P
Y2150
39P
Y 5150
10UH
E
Y 2157
56P
Y 2158
1N
Y 3358
1,8K
Y 3357
1,8K
Y 2155
1N
5157
15UH
Y 7160
BCR133
0V
SPC1
7380/7
H
Y 7163
BCR133
5V
SPC2
7380/11
Y3360
680
Y3363
330
3365
220
Y 2165
4,7P
2169
33N
3370
1K
2178
33N
2179
6,8P
5179
15UH
2159
18P
Y 2163
10N
2167
47P
5167
33UH
MP153
4,1V
1,7V
7165
BC848B
1,1V
3369
560
41
2,2V
0,3V
7170
BFS19
2170
180P
2176
180P
2175
820P
5175
82UH
2181
15P
Y 3373
100
VM
X 2364
47P
Y3364
470
3367
220
34
HC 7600/19
UNC.FM
FM-UNC
Y 2156
1N
Y 3355
1,2K
X 2355
47P
1,7V
3407
22K
2207
10N
Y 7200
BCR133
SQ-PB
SQ/PB
Y7380/13
5SW1*
2205
0,1U
Y3403
220
Y 2203
22P
Y 5203
15UH
C
5,1V
Y 7203
BC848B
Y 7210
BC858B
Y3405
560
MP154
Y3410
2,2K
Y3413
220
0,6V
MP155
5V
Y 7215
BC848B
39P
Y 2215
Y 5215
22UH
2,2V
Y 7217
BFS19
Y3415
220
Y 3417
470
MP156
Y 3418
100
Y 3394
100K
Y3397
220
Y3404
220
Y 7195
BC848B
0,6V
Y 2197
10N
Y3399
22K
SPC2
Y7380/11
BCR133
X 7190
X 3390
270
X 2190
10N
X 7193
BCR133
X 3393
560
SPC1
Y7380/7
DE 3287
LP
EP
Y7320/22
Y7290
SE
DE Y7085/36
HSC2
Y3536
Y1531/4
DE Y7085/46
U AUTO SEC
U/AUTOSE
5SW1*
5,1V
3,7V
2,9V
Y 7275
BFS19
DE Y7085/30
DOC-STOP
DO
Y 2275
1N
Y1530/7
DE Y7085/45
SVHS DET
SVHS-DET
Y 2279
1U/100V
HC 3610
FM T.T
52
Y1530/6
FM>BAND
Y 2268
82P
Y 5273
33UH
Y 3475
560
32
MP160
Y 2267
150P
Y 5267
150UH
Y 2269
390P
Y 5269
150UH
Y 2271
15P
Y 2273
15P
AY
Y 3479
2,2K
D
CC Y1528/4
F H/2
Y7230
H/2
Y1531/15
CC Y1528/3
FSC
Y3434
Y1530/10
Y1530/11
DE 7085/44
UREF VHS
REFVHS
36
DE 7085/49
UREF S-VHS
REFSVHS
DE 3279
FFP
Y7320/14 Y1530/9
SE Y2550
CVBS
FBAS_Z_VS
IO 1638/12
37
SE Y3596
MIX.SYN
SYNC
Y1530/12
HC 7649/3
DE X3324
DE 2092
SYN
BAS_SYN
OS Y3655
FBAS*
IO 1638/10
FBAS_V_VS
Y 3534
0
OS Y3654
Y1531/17

2395 F20
2422 D11
2501 G13
3350 A4
3353 B3
3355 C4
3357 B5
3358 B6
3360 B6
3363 B6
3364 C6
3365 B7
3367 C7
3369 C7
3370 B8
3373 C8
3378 B9
3379 C9
3381 C10
3382 A12
3383 A10
3384 C11
3385 C11
3387 A13
3390 D4
3393 E4
3394 E5
3397 E5
3399 E6
3403 D6
3404 E6
3405 D6
3407 C7
3410 D7
3413 D7
3415 E7
3417 E8
3418 E8
3421 D11
3425 C11
3427 D11
3430 B16
3432 B17
3433 B17
3434 A17
3435 B17
3437 B18
3440 B19
3455 C13
3460 D12
3475 G7
3479 G8
3480 F9
3482 G10
3485 H10
3487 G11
3489 I10
3490 G11
3491 G11
3492 F10
3493 G12
3494 G12
3495 F11
3499 G12
3500 G13
3501 G12
3502 H12
3503 H13
3504 H13
3507 H12
3508 H13
3509 H13
3510 G14
3511 I13
3512 E20
3513 E20
3514 E20
3515 H14
3516 H14
3518 H15
3520 H15
3521 G15
3522 G15
3523 H15
3525 H15
3526 I16
3527 I16
3528 H17
3530 G18
3531 G19
3532 H18
3533 H18
3534 J3
3535 J19
3536 C19
3537 D20
3538 F20
3539 G20
3540 G21
3542 G26
3543 G26
3544 G26
3545 G26
3546 J25
3547 J24
3548 I28
3549 H27
5150 B5
5157 B5
5167 B7
5175 C8
5179 B9
5185 B11
5203 D6
5215 D8
5267 G4
5269 G5
5273 G6
5340 D23
5341 D24
5360 B23
5422 D11
6240 B17
6260 D12
6350 I24
6360 G13
6425 H15
6427 I15
6537 C20
7150 B4
7160 A6
7163 A7


8
9
10
11
12
13
14
15
16
CH>BAND
627KHZ
Y1530/2
Y 3382
680
5SW1*
SPC1
7380/7
SPC2
7380/11
BC858B
Y 7184
2,9V
0,7V
2,2V
0V
Y 3383
0
+5VW
2178
33N
5SW1*
Y2182
10N
Y 2185
560P
Y 5185
33UH
B
PB-FM
Y1530/1
Y 2187
10N
Y 3387
1K
CAP
H
3365
220
2169
33N
3370
1K
2179
6,8P
5179
15UH
3378
1,8K
7180
BC848B
5V
MP157
2,9V
0V
5167
33UH
MP153
1,1V
2,2V
2170
180P
2176
180P
2175
820P
2181
15P
7170
0,3V
BFS19
5175
82UH
3379
2,2K
Y 3381
680
2,1V
0V
Y 7185
BC858B
5,1V
Y3385
680
Y 3384
10K
SWEST
SEC-W
7380/6
Y 2183
10N
41
Y 3373
100
VM
3407
22K
Y 7250
BCR133
0V
LP TRICK
0V
Y7370/12
Y2250
47N
1U/100V
Y 2257
Y 2253
22N
Y 3455
1K
Y 2255
1U/100V
2,8V
36
2,8V
35
NC
34
0,7V
33
5,1V
VCC
32IFH VCO
1/8
SLD
REC AFC DET
PB APC DET
FSC
CC Y1528/3
CC Y1528/4
5,1V
F
H/2
H/2
Y 3430
5SW1*
Y 2235
0,1U
Y 2237
47U/50
+5VW
Y 3425
47K
5SW1*
Y 2221
1N
Y 3421
1K
Y2422
68P
Y 5422
150UH
Y 3427
47K
2,4V
0V
Y 7225
BC848B
1,8V
0V
40
3,3V
2,5V
Y 2260
10N
MP162
37
38
ID-DET
KIL-DET
4PHASE SHIFTER
C.ROT
Y 6260
RLS4148
Y 3460
1K
SW
2,1V
39
COM
U/SW
Y7370/7
Y 2263
47N
0V
40
R
KILLER
C-LPF
P
R
P
Y 2264
68N
1,7V
41
42
MP164
3,2V
2,3V
43
FM AGC
DOUBLE LIMITTER
FM DEMOD
BGP.GN
39
3,7V
3V
44
FM MOD
CARRIER SHIFT
DOC DET
Y 2265
10U/50V
4,2V
45
REG 4,2V
SUB LPF
NL DEEMPH
WHP NOI CAN
DB
39
3,1V
2,3V
46
R
P
MAIN DEEMPH
SYNC SEP
DELAY
AGC DET
UNC.FM
Y1531/4
Y 3413
220
39P
Y 2215
Y 5215
22UH
0V
2,2V
Y 7217
BFS19
0V
5V
Y 7215
BC848B
0V
Y 3417
470
MP156
Y 3418
100
Y 3415
220
VM
VM
5SW1*
5,1V
3,7V
2,9V
Y 7275
BFS19
0V
34
SVHS-DET
Y 3480
100K
Y 2279
1U/100V
Y 3475
560
32
MP160
AY
Y 3479
2,2K
33
3V
2,3V
Y2282
27P
Y 3482
10K
MP180
D
0V
Y 7280
BCR133
SQ/PB
SQ-PB
Y7380/13
Y2292
220P 2%
Y 3492
1,2K
Y2293
33P
Y 3487
2,7K
Y 7285
BC848B
0V
Y 3485
22K
MP161
Y 3495
4,7K 2%
3,1V
2,3V
2,5V
1,7V
Y 7300
BC848B
5,1V
BAS 1
5SW1*
VBS
Y1531/11
MP167
Y 2300
1U/100V
3,2V
3V
47
CLAMP
FMAGC DET
W/D CLIP
DETAIL ENH
42
4,5V
2,3V
+5VW
RLS135
Y 6360
MAIN ENPH
NL ENPH
48
Y 3490
470
3,7V
Y 3493
1,2K
3V
Y 3501
47K
A
BC858B
Y 7305
2V
3V
Y 7310
BC848B
1,8V
1,2V
Y 3491
680
2295
180P
Y 3494
680
Y 3499
27K
Y 2501
10U/50V
Y 3500
2,2K
H
Y 3510
2,7K 1%
4,5V
2,3V
1
2
3,2V
5SW1*
3
2,5V
4
1,8V
5
1,5V
X2325
33N
Y3545
PIC_CTL
YNR CTL
P
R
Y 2318
390P 2%
Y 3518
680 1%
X3521
5,6K
Y3522
10K
X2321
27P
Y 2322
22N
Y 3523
10K
Y 2324
10U/50V
REFV
Y 3502
68K
Y 3503
100K
Y 3504
68K
X3515
10K
X 3516
10K
Y 6425
RLS135
Y 3525
15K
PIC-CON5
7380/14
Y 2316
Y2285
10N
DE 3287
EP
LP
Y 7290
BCR148
0V
LP
0V
Y3489
1K
VM
VM
Y2287
10N
Y 3507
100K
3508
100K
REFS
Y 3509
1K
X 3520
15K
X 6427
RLS135
X 3527
120K
PIC-CON6
Y7370/11
Y 2327
D
Y 3511
560
PCB MOTHERBOARD, VS
8
9
10
11
12
13
14
15
16

8 F20
9 G20
0 G21
2 G26
3 G26
4 G26

3545 G26
3546 J25
3547 J24
3548 I28
3549 H27
5150 B5

5157 B5
5167 B7
5175 C8
5179 B9
5185 B11
5203 D6

5215 D8
5267 G4
5269 G5
5273 G6
5340 D23
5341 D24

5360 B23
5422 D11
6240 B17
6260 D12
6350 I24
6360 G13

6425 H15
6427 I15
6537 C20
7150 B4
7160 A6
7163 A7

7165 C7
7170 C8
7180 B10
7184 A11
7185 C11
7190 D4

7193 E4
7195 E5
7200 C5
7203 D6
7210 D6
7215 D8

7217 D9
7225 D12
7230 B16
7235 B17
7240 A19
7250 B14

7275 F8
7280 G10
7285 G11
7290 H11
7300 F12
7305 G11

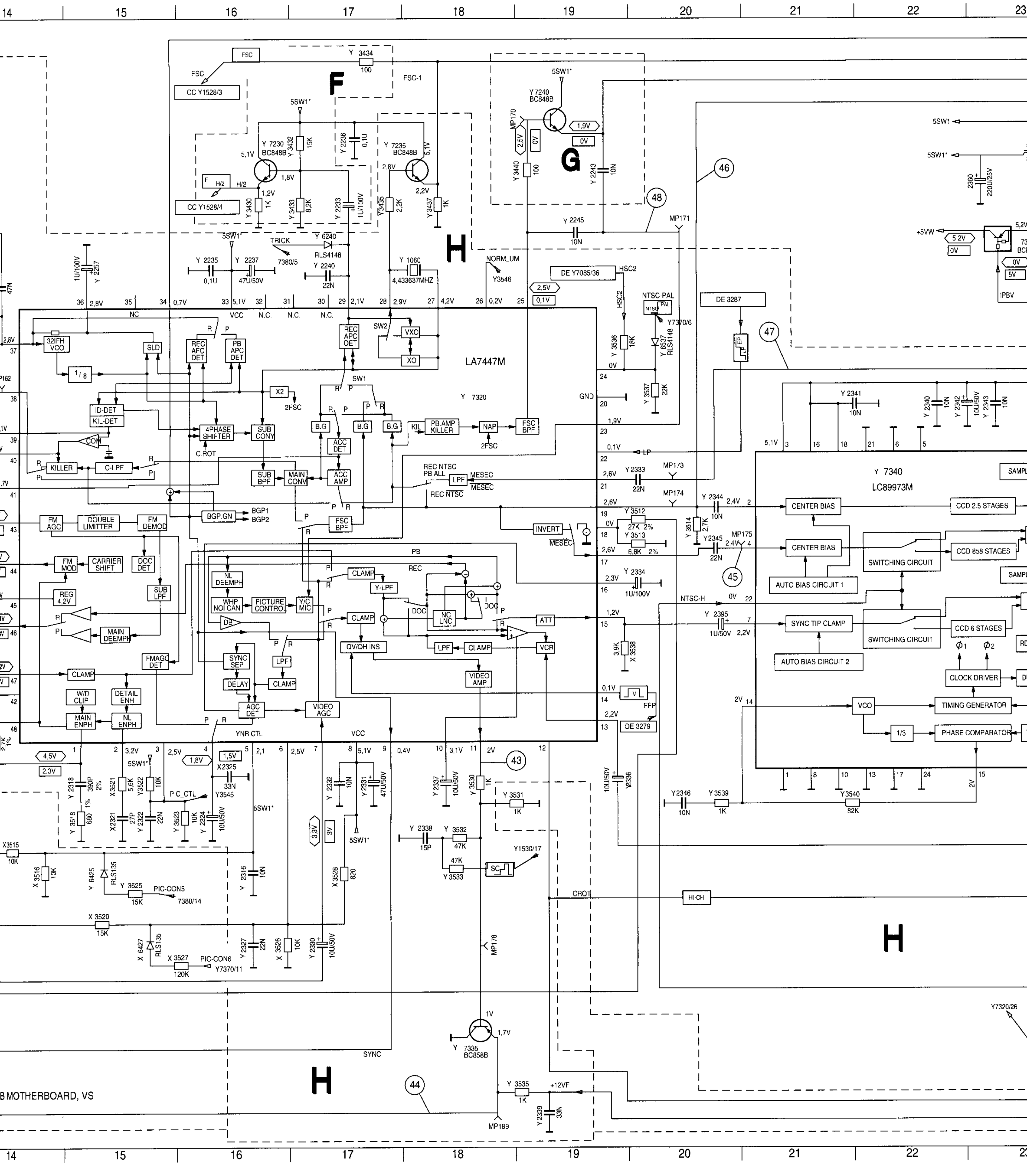
7310 G12
7320 D18
7335 J18
7340 E22
7360 B23
7370 G27

7380 I26
MP152 A5
MP153 C7
MP154 D6
MP155 D7
MP156 E8

MP157 B10
MP160 G8
MP161 F12
MP162 D14
MP164 E14
MP167 F13

MP170 A19
MP171 B20
MP173 E20
MP174 E20
MP175 E21
MP178 I18

MP180 G10
MP!88 B3
MP189 J18

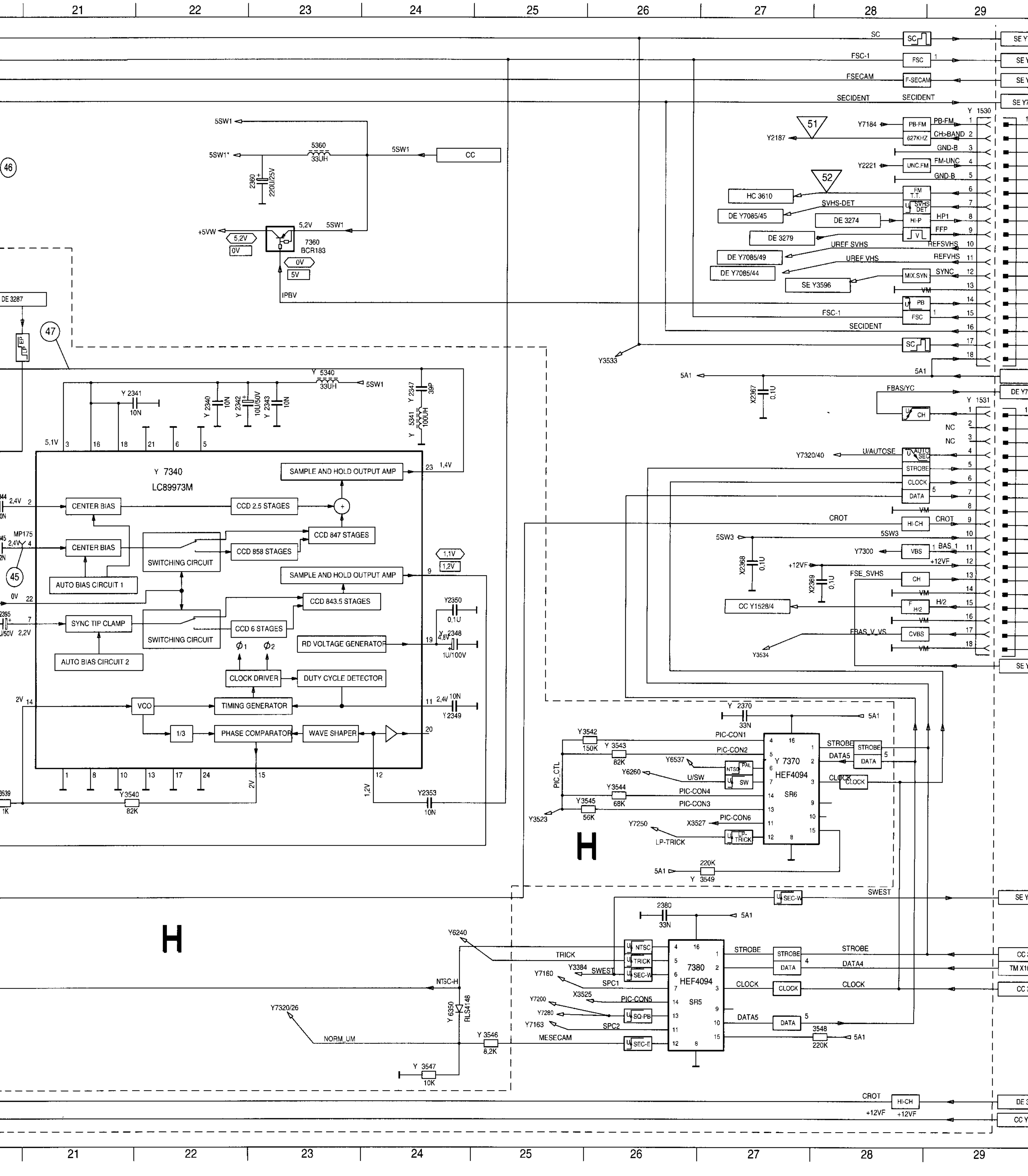

14
15
16
17
18
19
20
21
22
23
F
G
H
FSC
CC Y1528/3
CC Y1528/4
Y 3434
100
FSC-1
5SW1*
Y 7230
BC848B
Y 7235
BC848B
Y 7240
BC848B
Y 3432
15K
Y 2236
0,1U
Y 3430
1K
Y 3433
8,2K
Y 2233
1U/100V
Y 3435
2,2K
Y 3437
1K
Y 3440
100
Y 2243
10N
MP170
1,9V
0V
2,5V
46
48
MP171
Y 2245
10N
TRICK
7380/5
Y 6240
RLS4148
Y 2235
0,1U
Y 2237
47U/50V
Y 2240
22N
Y 1060
4,433637MHZ
NORM_UM
Y3546
DE Y7085/36
HSC2
NTSC-PAL
Y7370/6
Y 3536
1RK
Y 6537
RLS4148
Y 3537
22K
DE 3287
47
LA7447M
Y 7320
32IFH VCO
1/8
SLD
REC AFC DET
PB APC DET
REC APC DET
VXO
XO
SW1
SW2
X2
2FSC
ID-DET
KIL-DET
COM
4PHASE SHIFTER
SUB CONV
C.ROT
B.G
ACC DET
ACC AMP
PB.AMP KILLER
KIL
NAP
FSC BPF
KILLER
C-LPF
SUB BPF
MAIN CONV
BGP.GN
BGP1
BGP2
FSC BPF
REC NTSC
PB ALL
LPF
MESEC
INVERT
FM AGC
DOUBLE LIMITTER
FM DEMOD
FM MOD
CARRIER SHIFT
DOC DET
REG 4,2V
SUB LPF
MAIN DEEMPH
NL DEEMPH
WHP NOI CAN
PICTURE CONTROL
Y/C MIC
CLAMP
Y-LPF
NC LNC
DOC
ATT
VCR
QV/QH INS
LPF
SYNC SEP
DELAY
AGC DET
VIDEO AGC
VIDEO AMP
FMAGC DET
W/D CLIP
DETAIL ENH
MAIN ENPH
NL ENPH
YNR CTL
VCC
GND
PB
REC
DE 3279
FFP
Y 2333
22N
MP173
MP174
Y 3512
27K 2%
Y 3513
6,8K 2%
Y 3514
2,7K
Y 2344
10N
Y 2345
22N
MP175
45
Y 2334
1U/100V
NTSC-H
Y 2395
1U/50V
X 3538
3,9K
Y 7340
LC89973M
CENTER BIAS
CCD 2.5 STAGES
CCD 858 STAGES
SWITCHING CIRCUIT
AUTO BIAS CIRCUIT 1
SYNC TIP CLAMP
CCD 6 STAGES
AUTO BIAS CIRCUIT 2
CLOCK DRIVER
TIMING GENERATOR
VCO
1/3
PHASE COMPARATOR
SAMPL
Y 2341
10N
Y 2340
10N
Y 2342
10U/50V
Y 2343
10N
5SW1
2360
220U/25V
+5VW
5,2V
Y 2257
1U/100V
Y 2318
390P 2%
Y 3518
680 1%
X3521
5,6K
X2321
27P
Y3522
10K
Y 2322
22N
PIC_CTL
Y 3523
10K
Y 2324
10U/50V
X2325
33N
Y3545
Y 2332
10N
Y 2331
47U/50V
Y 2337
10U/50V
Y 3530
1K
43
Y 3531
1K
Y2336
10U/50V
Y2346
10N
Y 3539
1K
Y3540
82K
X3515
10K
X 3516
10K
Y 6425
RLS135
Y 3525
15K
PIC-CON5
7380/14
Y 2316
10N
X 3528
820
Y 2338
15P
Y 3532
47K
Y 3533
47K
Y1530/17
SC
CROT
HI-CH
X 3520
15K
X 6427
RLS135
X 3527
120K
PIC-CON6
Y7370/11
Y 2327
22N
X 3526
10K
Y 2330
10U/50V
MP178
Y 7335
BC858B
SYNC
44
Y 3535
1K
+12VF
Y 2339
33N
MP189
Y7320/26

B MOTHERBOARD, VS

Interconnections:

PS page 3-27	SE page 3-35	DE page 3-38	VP page
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page
TM page 3-34	VS page 3-37	CC page 3-40	AU page

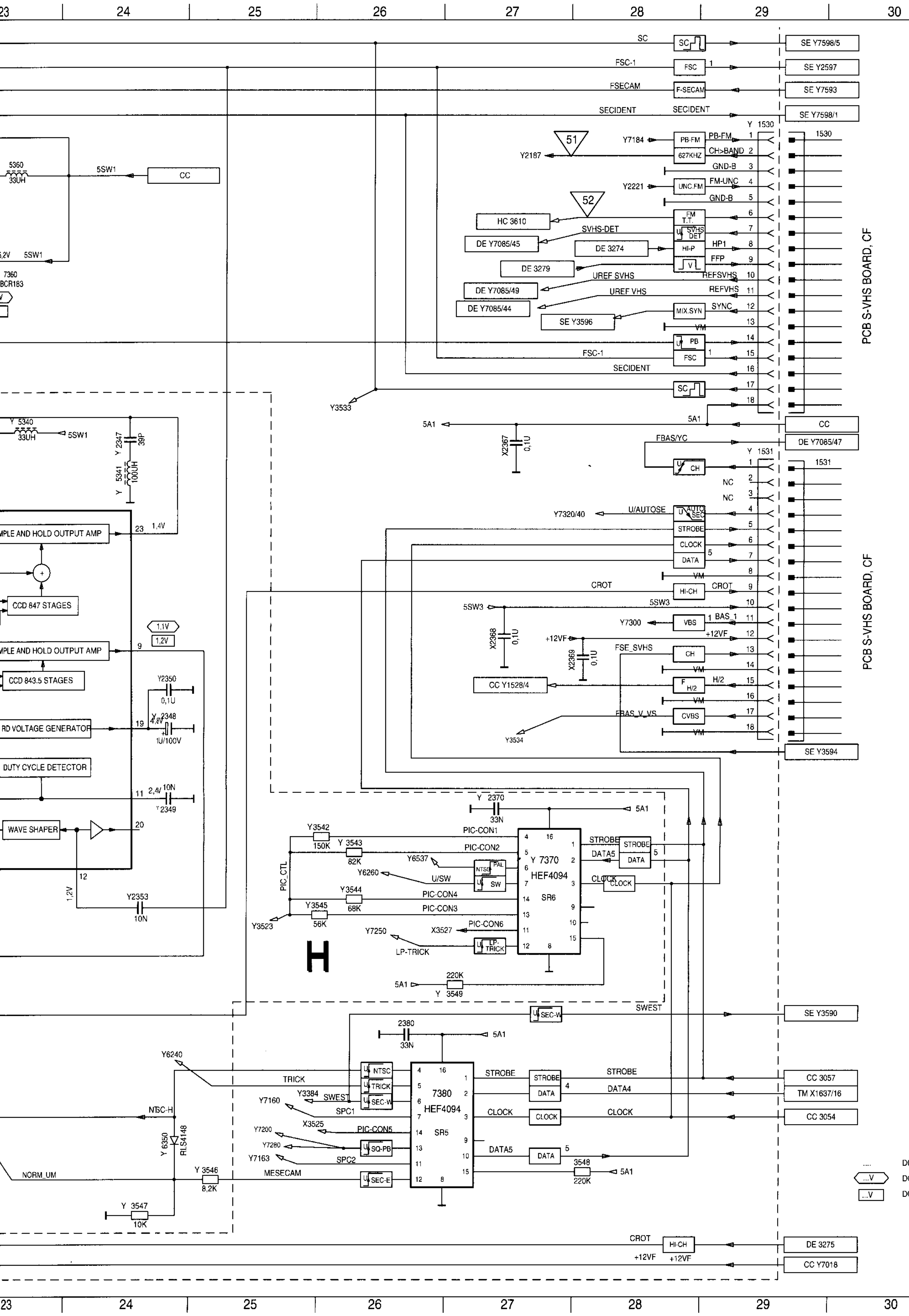
Note on the components: "X" components are not us


21
22
23
24
25
26
27
28
29
SC
FSC-1
FSECAM
SECIDENT
Y 1530
PB-FM
627KHZ
CH>BAND
GND-B
UNC.FM
FM-UNC
FM T.T.
SVHS DET
HI-P
HP1
FFP
REFSVHS
REFVHS
MIX.SYN
SYNC
VM
PB
FSC
51
52
Y2187
Y7184
Y2221
HC 3610
SVHS-DET
DE Y7085/45
DE 3274
DE 3279
UREF SVHS
DE Y7085/49
UREF VHS
DE Y7085/44
SE Y3596
Y3533
5A1
X2367 0,1U
FBAS/YC
Y 1531
CH
NC
Y7320/40
U/AUTOSE
AUTO SEC
STROBE
CLOCK
DATA
CROT
HI-CH
5SW3
X2368 0,1U
Y7300
VBS
BAS_1
+12VF
X2369 0,1U
FSE_SVHS
CC Y1528/4
H/2
FBAS_V_VS
CVBS
Y3534
5SW1
5360 33UH
5SW1*
2360 220U/25V
CC
+5VW
5,2V
0V
5V
7360 BCR183
IPBV
46
47
45
DE 3287
LP EP
Y 5340 33UH
Y 2347 39P
Y 5341 100UH
Y 2341 10N
Y 2340 10N
Y 2342 10U/50V
Y 2343 10N
5,1V
1,4V
Y 7340
LC89973M
SAMPLE AND HOLD OUTPUT AMP
CENTER BIAS
CCD 2.5 STAGES
CCD 847 STAGES
CCD 858 STAGES
SWITCHING CIRCUIT
AUTO BIAS CIRCUIT 1
CCD 843.5 STAGES
SYNC TIP CLAMP
CCD 6 STAGES
AUTO BIAS CIRCUIT 2
RD VOLTAGE GENERATOR
CLOCK DRIVER
DUTY CYCLE DETECTOR
VCO
TIMING GENERATOR
1/3
PHASE COMPARATOR
WAVE SHAPER
φ1
φ2
MP175
2,4V
1,1V
1,2V
Y2350 0,1U
Y 2348 1U/100V
Y2349 10N
Y2353 10N
Y3540 82K
1K
2V
H
Y 2370 33N
Y3542 150K
Y 3543 82K
PIC-CON1
PIC-CON2
Y6537
NTSC PAL
Y6260
U/SW
SW
PIC_CTL
Y3544 68K
PIC-CON4
Y3545 56K
PIC-CON3
Y3523
Y7250
X3527
PIC-CON6
LP-TRICK
Y 7370
HEF4094
SR6
DATA5
220K Y 3549
SEC-W
SWEST
2380 33N
Y6240
TRICK
NTSC
Y7160
Y3384
SWEST
SPC1
Y7200
X3525
PIC-CON5
SQ-PB
Y7280
Y7163
SPC2
MESECAM
SEC-E
7380
HEF4094
SR5
DATA4
3548 220K
NTSC-H
Y 6350
RLS4148
Y7320/26
NORM_UM
Y 3546 8,2K
Y 3547 10K
+12VF
SE Y
DE Y7
CC
TM X1
DE 3
CC Y

Interconnections:

PS page 3-27	SE page 3-35	DE page 3-38	VP page 3-41	VT page 3-46	SF page 3-53
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP page 3-54
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC page 3-57...

Note on the components: "X" components are not used "Y" components are optional


23
24
25
26
27
28
29
30
31
A
B
C
D
E
F
G
H
I
J
SC
FSC-1
FSECAM
SECIDENT
SE Y7598/5
SE Y2597
SE Y7593
SE Y7598/1
Y 1530
1530
PB-FM
CH>BAND
GND-B
FM-UNC
627KHZ
UNC.FM
51
52
Y7184
Y2187
Y2221
5360
33UH
5SW1
CC
HC 3610
SVHS-DET
DE Y7085/45
DE 3274
HI-P
HP1
FFP
DE 3279
UREF SVHS
REFSVHS
DE Y7085/49
UREF VHS
REFVHS
DE Y7085/44
SE Y3596
MIX.SYN
SYNC
VM
PB
FSC
PCB S-VHS BOARD, CF
7360
BCR183
5,2V
Y3533
5A1
X2367
0,1U
FBAS/YC
DE Y7085/47
Y 1531
1531
CH
NC
Y 5340
33UH
Y 2347
39P
Y 5341
100UH
Y7320/40
U/AUTOSE
AUTO SEC
STROBE
CLOCK
DATA
CROT
HI-CH
5SW3
X2368
Y7300
VBS
BAS_1
+12VF
X2369
FSE_SVHS
CC Y1528/4
H/2
FBAS_V_VS
CVBS
Y3534
SE Y3594
SAMPLE AND HOLD OUTPUT AMP
CCD 847 STAGES
CCD 843.5 STAGES
THIRD VOLTAGE GENERATOR
DUTY CYCLE DETECTOR
WAVE SHAPER
1,4V
1,1V
1,2V
Y2350
0,1U
Y 2348
4,6V
1U/100V
2,4V
10N
Y2349
Y2353
10N
Y 2370
33N
Y3542
150K
Y 3543
82K
PIC-CON1
PIC-CON2
PIC_CTL
Y6537
Y6260
U/SW
NTSC
PAL
SW
Y 7370
HEF4094
SR6
STROBE
DATA5
CLOCK
Y3544
68K
PIC-CON4
Y3545
56K
PIC-CON3
Y3523
PIC-CON6
Y7250
X3527
LP-TRICK
220K
Y 3549
H
SEC-W
SWEST
SE Y3590
2380
33N
Y6240
TRICK
Y3384
Y7160
SPC1
NTSC-H
X3525
PIC-CON5
Y7200
Y7280
Y7163
SQ-PB
SPC2
Y 6350
RLS4148
NORM_UM
Y 3546
8,2K
MESECAM
SEC-E
7380
HEF4094
SR5
DATA4
CC 3057
TM X1637/16
CC 3054
DATA5
3548
220K
Y 3547
10K
DE 3275
CC Y7018

	For sets with	
A	VHS & OSD	
Y3531	VHS & TXT	
B	SECAM L	
	S-VHS	SQPB
C	X	X
Y2150	47p	39p
Y2203	10p	22p
Y2215	68p	39p
Y3397	390	220
Y3405	470	560
Y3418	150	100
Y5203	10µ	15µ
Y5215	15µ	22µ
D Y2236	SQPB	
Y2293	VHS = 33p SVHS = not used	
	VHS	S-VHS
E	--	X
Y1530	--	X
Y1531	--	X
Y2156	--	X
Y2157	56p	68p
Y3511	--	X
Y3355	--	X
Y3364	680	470
Y3382 Y7184	S-VHS & SECAM L	
Y3383	S-VHS & PAL	
F Y3430 Y3534 Y7230	TXT & VHS	
Y3434	TXT	
Y2182 Y2245	VHS & PAL	
G Y2183	VHS & SECAM L	
	VHS	S-VHS
H	X	--
Y3373	100	150
Y3512	X	--
Y3513	X	--
Y3525	X	--
Y6425	X	--
Y3381	PAL	

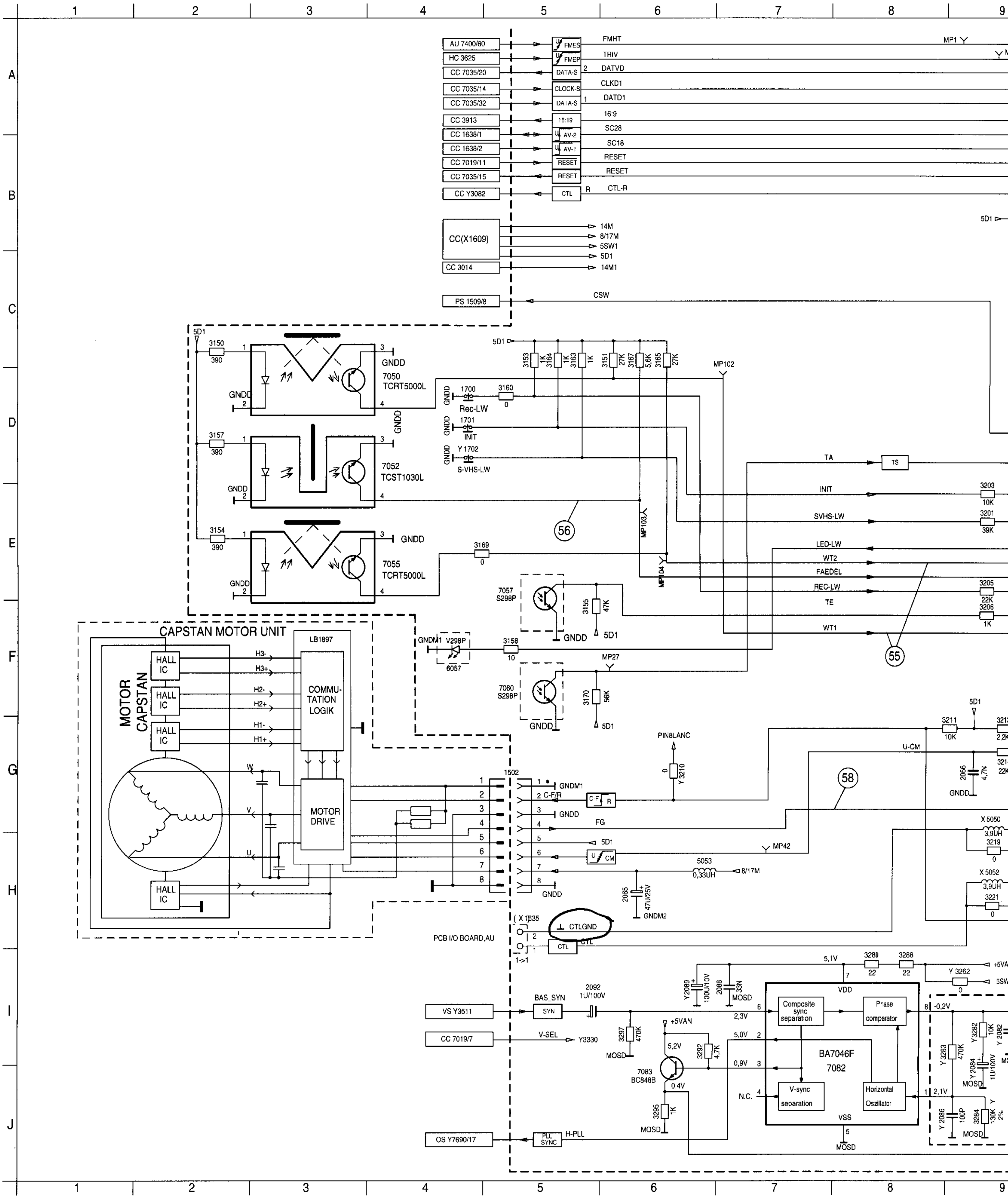
.... DC VOLTAGES FOR ALL MODUS

⟨...V⟩ DC VOLTAGES MEASURED PLAYBACK

[...V] DC VOLTAGES MEASURED RECORD

Mother Board - Deck Electronics (DE)

1050 J18	1702 D4	2064 G16	2073 G11	2081 G12	2087 A19	2093 A24	2103 G22	2115 H22	2127 J18	2136 H26	2145 J27	3153 C5	3163 C5	3175 B16	3185 C12	3192 D12	3198 E16	3205 E9	3219 H9	3229 G1
1501 H28	2050 A16	2065 H6	2074 H11	2082 I9	2088 I7	2094 A19	2106 G24	2116 H23	2128 J10	2138 H26	2188 B14	3154 E2	3164 C5	3177 C11	3186 B13	3193 D12	3199 E10	3206 F9	3221 H9	3230 F1
1502 G5	2055 E13	2066 G9	2075 G11	2083 F12	2089 I6	2095 B25	2108 G24	2117 I23	2129 J10	2140 I26	2189 C13	3155 F5	3165 C6	3179 C11	3187 B14	3194 F15	3200 E17	3210 G6	3222 H10	3231 G1
1635 H5	2061 F15	2067 F11	2077 H11	2084 J9	2090 A19	2097 B23	2109 G23	2119 I23	2130 G26	2141 I26	3064 B21	3157 D2	3167 C6	3181 C10	3188 D16	3195 E14	3201 E9	3211 G9	3223 H10	3233 G1
1700 D4	2062 E16	2068 F11	2079 H11	2085 G16	2091 A20	2099 B23	2110 H23	2121 J23	2131 I11	2143 I26	3150 C2	3158 F5	3169 E4	3183 C11	3190 D11	3196 E16	3202 B9	3213 G9	3225 G10	3235 H1
1701 D4	2063 G16	2071 H10	2080 G11	2086 J9	2092 I5	2101 G22	2112 H23	2125 J18	2135 H26	2144 J27	3151 C6	3160 D5	3170 F5	3184 C12	3191 D12	3197 D13	3203 E9	3214 G9	3227 H12	3236 H1


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
AU 7400/60
HC 3625
CC 7035/20
CC 7035/14
CC 7035/32
CC 3913
CC 1638/1
CC 1638/2
CC 7019/11
CC 7035/15
CC Y3082
FMES
FMEP
DATA-S
CLOCK-S
DATA-S
16:19
AV-2
AV-1
RESET
RESET
CTL
FMHT
TRIV
DATVD
CLKD1
DATD1
16:9
SC28
SC18
RESET
RESET
CTL-R
MP1
CC(X1609)
CC 3014
14M
8/17M
5SW1
5D1
14M1
5D1
PS 1509/8
CSW
5D1
3150
390
GNDD
7050
TCRT5000L
3157
390
7052
TCST1030L
3154
390
7055
TCRT5000L
3153
1K
3164
1K
3163
1K
3151
27K
3167
5,6K
3165
27K
MP102
1700
3160
0
Rec-LW
1701
INIT
Y 1702
S-VHS-LW
56
MP103
MP104
3169
0
TA
TS
INIT
3203
10K
SVHS-LW
3201
39K
LED-LW
WT2
FAEDEL
REC-LW
3205
22K
TE
3206
1K
WT1
55
7057
S298P
3155
47K
5D1
GNDM1
V298P
6057
3158
10
MP27
7060
S298P
3170
56K
CAPSTAN MOTOR UNIT
LB1897
HALL IC
H3-
H3+
H2-
H2+
H1-
H1+
MOTOR CAPSTAN
COMMU-TATION LOGIK
MOTOR DRIVE
W
V
U
1502
GNDM1
C-F/R
C-F
R
FG
CM
MP42
5053
0,33UH
8/17M
2065
47U/25V
GNDM2
PIN8LANC
Y 3210
0
58
3211
10K
U-CM
2066
4,7N
X 5050
3,9UH
3219
0
X 5052
3,9UH
3221
0
(X 1)635
CTLGND
CTL
PCB I/O BOARD,AU
1->1
5,1V
3289
22
3288
22
+5VA
Y 3262
0
5SW
2089
100U/10V
2088
33N
MOSD
VDD
VS Y3511
BAS_SYN
SYN
2092
1U/100V
2,3V
CC 7019/7
V-SEL
Y3330
3297
470K
+5VAN
5,2V
3292
4,7K
5,0V
0,9V
7083
BC848B
0,4V
3295
1K
N.C.
Composite sync separation
Phase comparator
BA7046F
7082
V-sync separation
Horizontal Oszillator
VSS
-0,2V
2,1V
Y 3283
470K
Y3282
10K
Y 2084
1U/100V
Y 2086
100P
3284
130K
2%
OS Y7690/17
PLL SYNC
H-PLL

75 B16
7 C11
79 C11
31 C10
33 C11
34 C12

3185 C12
3186 B13
3187 B14
3188 D16
3190 D11
3191 D12

3192 D12
3193 D12
3194 F15
3195 E14
3196 E16
3197 D13

3198 E16
3199 E10
3200 E17
3201 E9
3202 B9
3203 E9

3205 E9
3206 F9
3210 G6
3211 G9
3213 G9
3214 G9

3219 H9
3221 H9
3222 H10
3223 H10
3225 G10
3227 H12

3229 G13
3230 F14
3231 G14
3233 G14
3235 H13
3236 H14

3238 H13
3240 G15
3241 G16
3242 G16
3243 G17
3244 I16

3246 I15
3250 A22
3251 A22
3253 A22
3254 B22
3255 A24

3257 B24
3260 B21
3261 B19
3262 I9
3265 B22
3266 B22

3268 B23
3270 C22
3271 D20
3272 E19
3274 E22
3275 F21

3276 F21
3278 F22
3279 F21
3281 G21
3282 I9
3283 I8

3284 J9
3285 G19
3286 G19
3287 G19
3288 I8
3289 I8

3290 G19
3291 G20
3292 I6
3293 G20
3294 G20
3295 J6

3296 G21
3297 I6
3300 H22
3301 H22
3302 H21
3305 I22

3306 I23
3307 I12
3310 I12
3312 I11
3313 J11
3314 J11

3316 I11
3317 G26
3318 I10
3319 H26
3320 I10
3321 I26

3322 J10
3323 J27
3324 I10
3325 I27
3326 J12
3327 J12

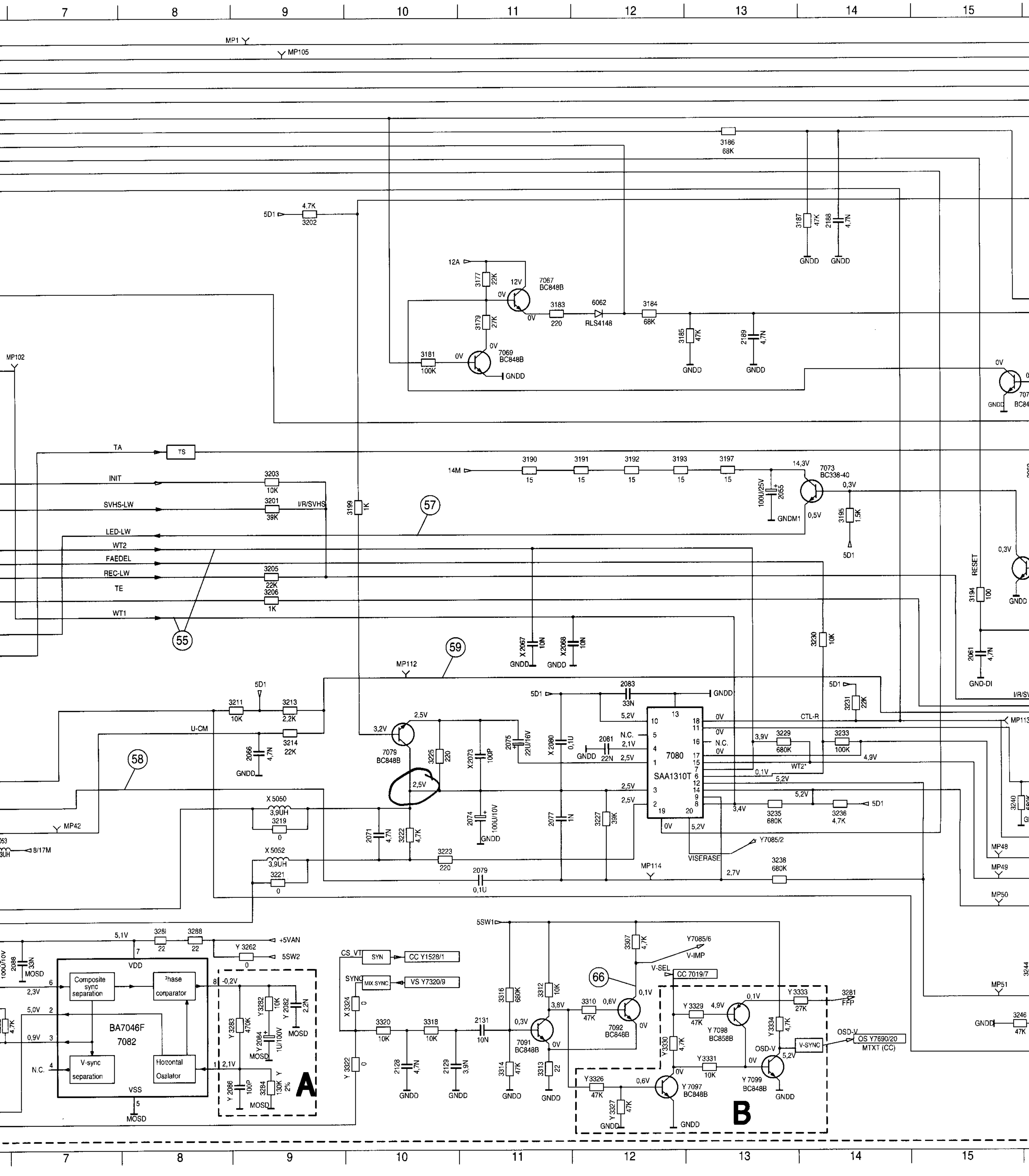
3329 I13
3330 J12
3331 J13
3333 I14
3334 I13
5050 G9

5052 H9
5053 H6
5055 A19
5060 G27
5190 J17
6057 F4

6062 C12
6070 G16
6095 H27
7050 D4
7052 D4
7055 E4

7057 E5
7060 F5
7067 C11
7069 C11
7070 D16
7071 D22

7072
7073
7074
7075
7078
7079


7
8
9
10
11
12
13
14
15
MP1
MP105
3186
68K
5D1
4,7K
3202
3187
47K
2188
4,7N
GNDD
GNDD
12A
3177
22K
12V
7067
BC848B
0V
0V
3183
220
6062
RLS4148
3184
68K
3179
27K
3185
47K
2189
4,7N
GNDD
GNDD
3181
100K
0V
0V
7069
BC848B
GNDD
MP102
TA
TS
INIT
3203
10K
SVHS-LW
3201
39K
I/R/SVHS
3199
1K
57
14M
3190
15
3191
15
3192
15
3193
15
3197
15
14,3V
7073
BC338-40
0,3V
100U/25V
2055
GNDM1
0,5V
3195
1,5K
5D1
LED-LW
WT2
FAEDEL
REC-LW
3205
22K
TE
3206
1K
WT1
55
X 2067
10N
GNDD
X 2068
10N
GNDD
3230
10K
RESET
3194
100
0,3V
GNDD
2061
4,7N
GND-DI
0V
GNDD
59
MP112
5D1
3211
10K
3213
2,2K
U-CM
3214
22K
2066
4,7N
GNDD
58
3,2V
2,5V
7079
BC848B
3225
220
X2073
100P
2075
22U/16V
X 2080
0,1U
5D1
2083
33N
GNDD
2081
22N
GNDD
N.C.
5,2V
2,1V
2,5V
7080
SAA1310T
0V
0V
0V
N.C.
3,9V
3229
680K
3233
100K
4,9V
CTL-R
WT2*
0,1V
5,2V
2,5V
2,5V
2,5V
3,4V
3235
680K
5,2V
3236
4,7K
5D1
5D1
3231
22K
I/R/SV
MP113
X 5050
3,9UH
3219
0
2071
4,7N
3222
4,7K
2074
100U/10V
GNDD
2077
1N
3227
39K
0V
5,2V
VISERASE
Y7085/2
MP42
8/17M
X 5052
3,9UH
3221
0
3223
220
2079
0,1U
MP114
2,7V
3238
680K
3240
MP48
MP49
MP50
5,1V
3281
22
3288
22
+5VAN
Y 3262
0
5SW2
2088
33N
100U/10V
MOSD
VDD
7
6
2,3V
5,0V
2
0,9V
3
N.C.
4
Composite sync separation
Phase comparator
8
-0,2V
BA7046F
7082
V-sync separation
Horizontal Oszilator
1
2,1V
VSS
5
MOSD
Y 3283
470K
Y 3282
10K
Y 2082
2,2N
Y 2084
1U/100V
MOSD
MOSD
Y 2086
100P
3284
130K
2%
MOSD
A
CS_VT
SYN
CC Y1528/1
SYNC
MIX.SYNC
VS Y7320/9
X 3324
0
Y 3322
0
3320
10K
3318
10K
2128
4,7N
2129
3,9N
GNDD
GNDD
2131
10N
5SW1
3316
680K
3312
10K
3314
4,7K
GNDD
0,3V
3,8V
0V
7091
BC848B
3313
22
GNDD
3310
47K
0,6V
7092
BC846B
0V
3307
4,7K
Y7085/6
V-IMP
66
V-SEL
CC 7019/7
0,1V
Y 3329
47K
4,9V
0,1V
Y 3333
27K
3281
FFP
Y 7098
BC858B
Y 3330
4,7K
Y 3334
4,7K
OSD-V
V-SYNC
OS Y7690/20
MTXT (CC)
Y 3331
10K
0V
OSD-V
5,2V
Y 7099
BC848B
GNDD
Y 3326
47K
0,6V
0V
Y 7097
BC848B
Y 3327
47K
GNDD
GNDD
B
MP51
3244
GNDD
3246
47K
7
8
9
10
11
12
13
14
15

2 J10
3 J27
4 I10
5 I27
6 J12
7 J12

3329 I13
3330 J12
3331 J13
3333 I14
3334 I13
5050 G9

5052 H9
5053 H6
5055 A19
5060 G27
5190 J17
6057 F4

6062 C12
6070 G16
6095 H27
7050 D4
7052 D4
7055 E4

7057 E5
7060 F5
7067 C11
7069 C11
7070 D16
7071 D22

7072 E16
7073 D14
7074 D16
7075 F16
7078 G22
7079 G10

7080 G12
7082 J8
7083 J6
7085 I18
7090 B23
7091 J11

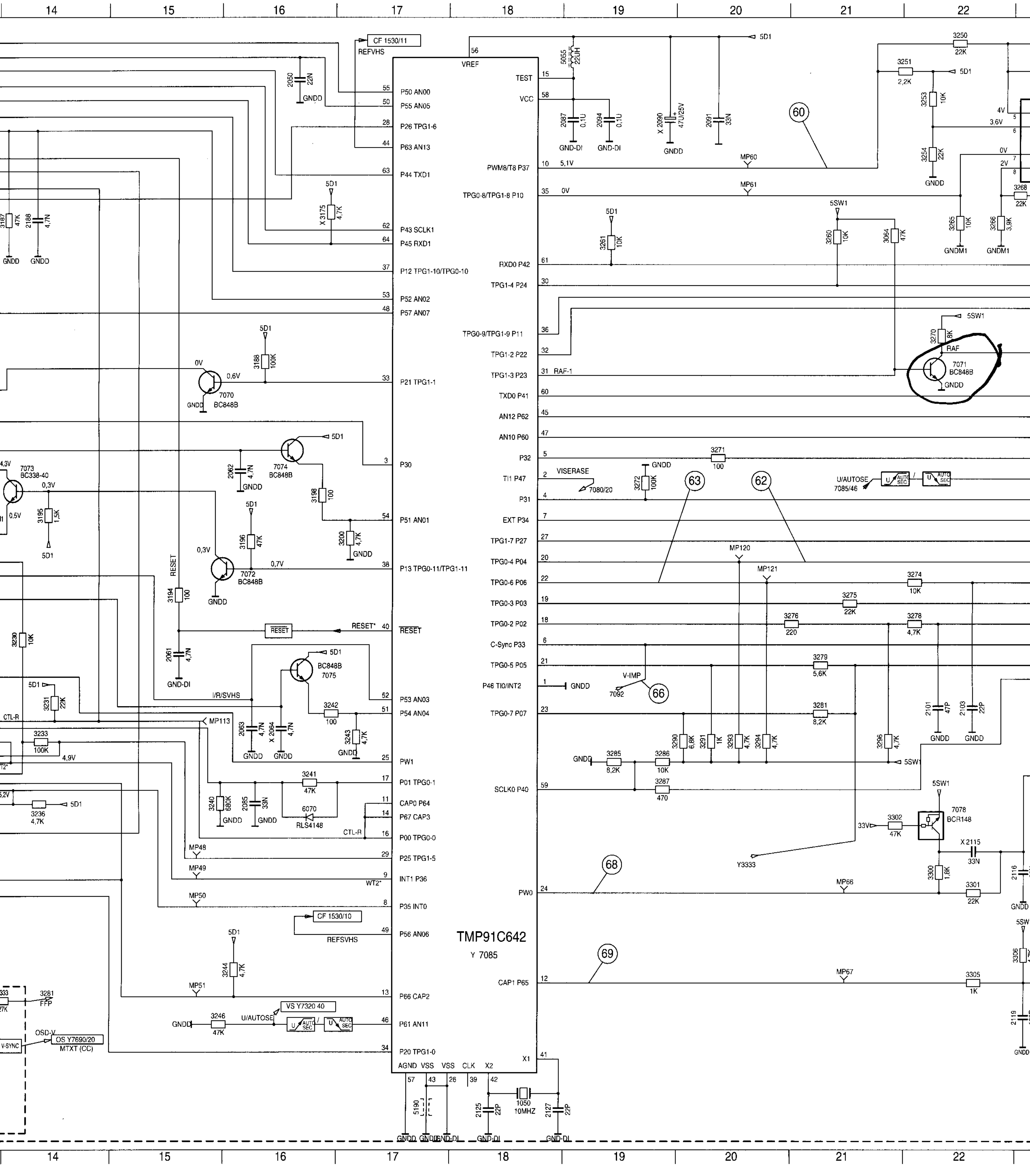
7092 I12
7095 J24
7097 J13
7098 I13
7099 J13
MP1 A9

MP27 F6
MP42 H7
MP48 H15
MP49 H15
MP50 H15
MP51 I15

MP60 B20
MP61 B20
MP66 H21
MP67 I21
MP102 D7
MP103 E6

MP104 D6
MP105 A9
MP112 F10
MP113 G15
MP114 H12
MP117 D26

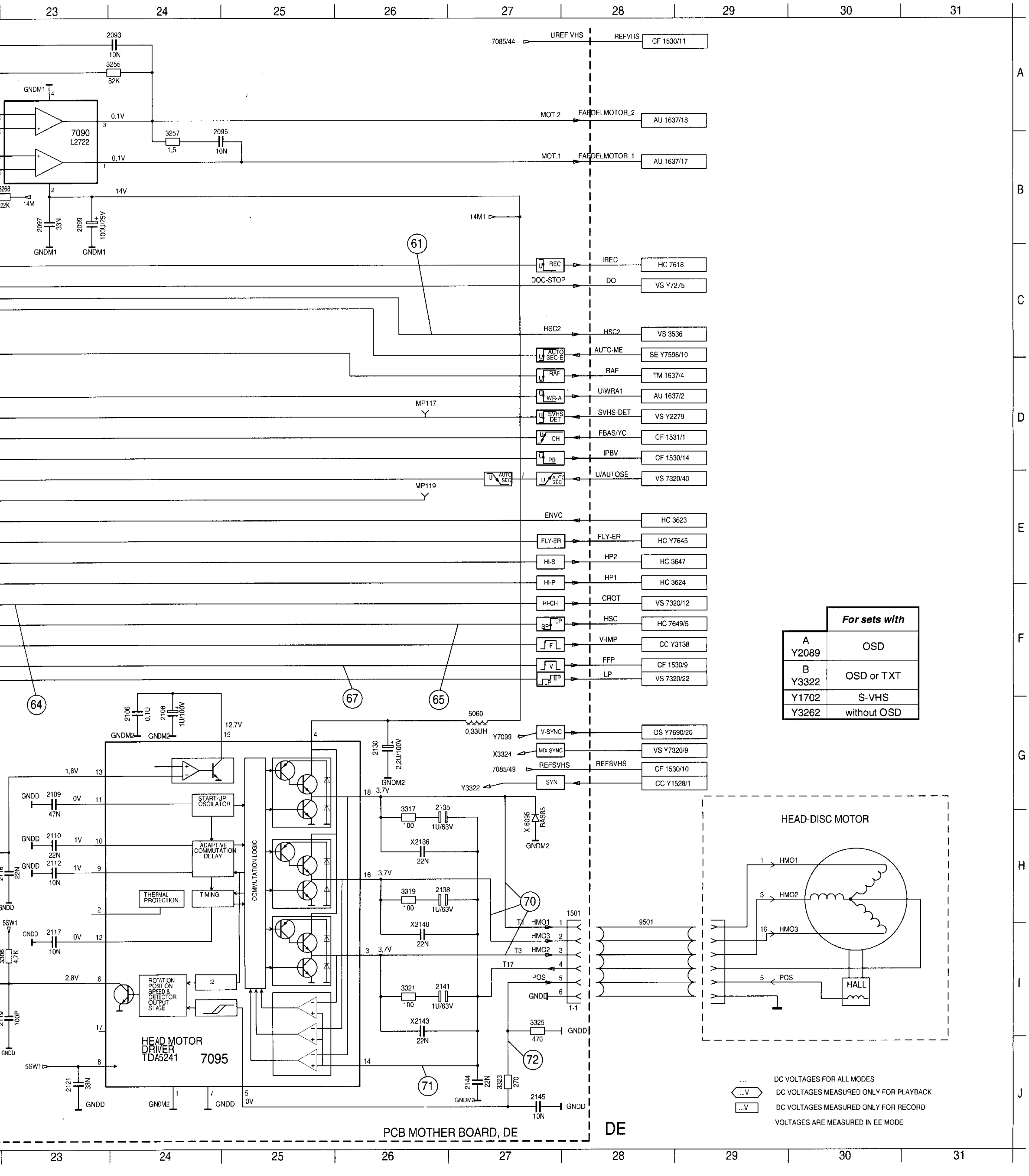
MP119 E26
MP120 E20
MP121 F20


14
15
16
17
18
19
20
21
22
TMP91C642
Y 7085
VREF
TEST
VCC
P50 AN00
P55 AN05
P26 TPG1-6
P63 AN13
P44 TXD1
P43 SCLK1
P45 RXD1
P12 TPG1-10/TPG0-10
P52 AN02
P57 AN07
P21 TPG1-1
P30
P51 AN01
P13 TPG0-11/TPG1-11
RESET
P53 AN03
P54 AN04
PW1
P01 TPG0-1
CAP0 P64
P67 CAP3
P00 TPG0-0
P25 TPG1-5
INT1 P36
P35 INT0
P56 AN06
P66 CAP2
P61 AN11
P20 TPG1-0
AGND VSS VSS CLK X2
X1
PWM8/T8 P37
TPG0-8/TPG1-8 P10
RXD0 P42
TPG1-4 P24
TPG0-9/TPG1-9 P11
TPG1-2 P22
TPG1-3 P23
TXD0 P41
AN12 P62
AN10 P60
P32
TI1 P47
P31
EXT P34
TPG1-7 P27
TPG0-4 P04
TPG0-6 P06
TPG0-3 P03
TPG0-2 P02
C-Sync P33
TPG0-5 P05
P46 TI0/INT2
TPG0-7 P07
SCLK0 P40
PW0
CAP1 P65
CF 1530/11
REFVHS
CF 1530/10
REFVHS
5D1
5SW1
GNDD
GND-DI
GNDM1
5055 22UH
2087 0,1U
2094 0,1U
X 2090 47U/25V
2091 33N
2050 22N
3250 22K
3251 2,2K
3253 10K
3254 22K
3265 10K
3266 3,9K
3268 22K
3260 10K
3064 47K
3261 10K
3270 8K
RAF
RAF-1
7071 BC848B
3271 100
3272 100K
VISERASE
7080/20
U/AUTOSE
7085/46
MP60
MP61
MP120
MP121
MP113
MP48
MP49
MP50
MP51
MP66
MP67
60
62
63
66
68
69
3274 10K
3275 22K
3276 220
3278 4,7K
3279 5,6K
3281 8,2K
2101 47P
2103 22P
3290 6,8K
3291 1K
3293 4,7K
3294 4,7K
3296 4,7K
3285 8,2K
3286 10K
3287 470
V-IMP
7092
Y3333
7078 BCR148
3302 47K
33V
X 2115 33N
3300 1,8K
3301 22K
2116
3305 1K
3306
2119
3187 47K
2188 4,7N
X 3175 4,7K
3188 100K
7070 BC848B
0V
0,6V
7074 BC848B
2062 4,7N
3198 100
3200 4,7K
7073 BC338-40
4,3V
0,3V
0,5V
3195 1,5K
3196 47K
7072 BC848B
0,7V
3194 100
2061 4,7N
RESET*
7075 BC848B
I/R/SVHS
3242 100
3243 4,7K
2063 4,7N
X 2064 4,7N
3230 10K
3231 22K
CTL-R
3233 100K
4,9V
3236 4,7K
3241 47K
3240 680K
2085 33N
6070 RLS4148
WT2*
3244 4,7K
3246 47K
VS Y7320 40
OSD-V
OS Y7690/20
MTXT (CC)
V-SYNC
3281 FFP
5190
2125 22P
1050 10MHZ
2127 22P
5,1V
4V
3,6V
2V

Interconnections:

PS page 3-27	SE page 3-35	DE page 3-38	VP page 3-41	VT page 3-46	SF page 3-53
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP page 3-54
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC page 3-57...

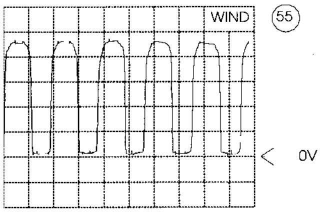
Note on the components: "X" components are not used "Y" components are optional



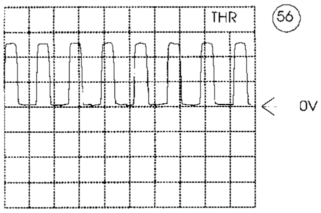
23
24
25
26
27
28
29
30
31
A
B
C
D
E
F
G
H
I
J
2093
10N
3255
82K
GNDM1
7090
L2722
0,1V
3257
1,5
2095
10N
MOT.2
FADELMOTOR_2
AU 1637/18
MOT.1
FADELMOTOR_1
AU 1637/17
7085/44
UREF VHS
REFVHS
CF 1530/11
14V
14M
22K
2097
33N
2099
100U/25V
GNDM1
14M1
61
REC
IREC
HC 7618
DOC-STOP
DO
VS Y7275
HSC2
VS 3536
AUTO SEC-E
AUTO-ME
SE Y7598/10
RAF
TM 1637/4
WR-A
U/WRA1
AU 1637/2
MP117
SVHS DET
SVHS-DET
VS Y2279
CH
FBAS/YC
CF 1531/1
PB
IPBV
CF 1530/14
AUTO SEC
U/AUTOSE
VS 7320/40
MP119
ENVC
HC 3623
FLY-ER
HC Y7645
HI-S
HP2
HC 3647
HI-P
HP1
HC 3624
HI-CH
CROT
VS 7320/12
SP LP
HSC
HC 7649/5
F
V-IMP
CC Y3138
V
FFP
CF 1530/9
LP EP
LP
VS 7320/22
64
67
65
2106
0,1U
2108
1U/100V
GNDM2
12,7V
15
5060
0,33UH
Y7099
V-SYNC
OS Y7690/20
X3324
MIX SYNC
VS Y7320/9
7085/49
REFSVHS
CF 1530/10
Y3322
SYN
CC Y1528/1
2130
2,2U/100V
1,6V
13
GNDD
2109
47N
0V
11
START-UP OSCILATOR
2110
22N
1V
10
ADAPTIVE COMMUTATION DELAY
2112
10N
9
THERMAL PROTECTION
TIMING
COMMUTATION LOGIC
2
5SW1
2117
12
3306
4,7K
2,8V
6
ROTATION POSITION SPEED & DETECTOR OUTPUT STAGE
:2
2119
100P
17
HEAD MOTOR DRIVER TDA5241
7095
5SW1
8
2121
33N
GNDD
1
7
5
0V
14
18
3,7V
16
3
3317
100
2135
1U/63V
X2136
22N
3319
2138
X2140
3321
2141
X2143
X 6095
BAS85
70
1501
T4
HMO1
HMO3
T3
HMO2
T17
POS
GNDD
1-1
9501
3325
470
72
71
2144
22N
3323
270
2145
10N
PCB MOTHER BOARD, DE
DE
HEAD-DISC MOTOR
HALL

	For sets with
A Y2089	OSD
B Y3322	OSD or TXT
Y1702	S-VHS
Y3262	without OSD

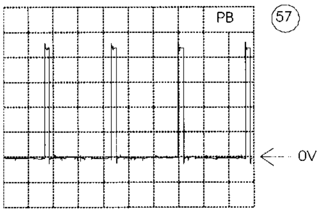
.... DC VOLTAGES FOR ALL MODES
...V DC VOLTAGES MEASURED ONLY FOR PLAYBACK
...V DC VOLTAGES MEASURED ONLY FOR RECORD
VOLTAGES ARE MEASURED IN EE MODE



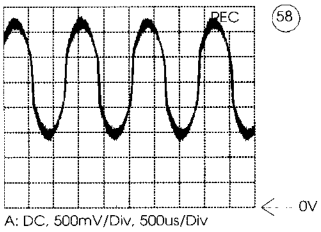
A: DC, 1 V/Div, 5ms/Div
IC 7080 Pin 7/8



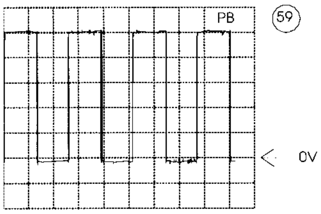
A: DC, 2 V/Div, 10ms/Div
IC 7052 Pin 4



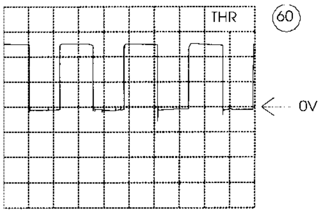
A: DC, 1 V/Div, 5ms/Div
Transistor 7073 Emitter



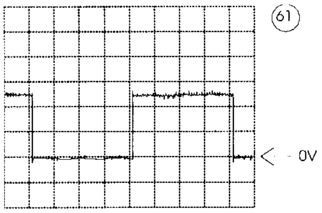
A: DC, 500mV/Div, 500us/Div
Connector 1502 Pin 4



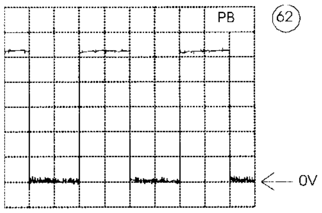
A: DC, 1 V/Div, 10us/Div
IC 7085 Pin 25



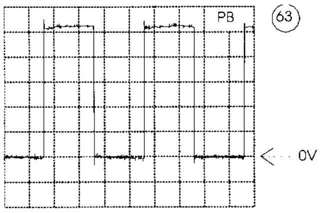
A: DC, 2 V/Div, 20us/Div
IC 7085 Pin 10



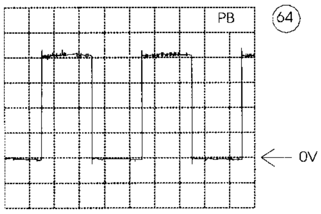
A: DC, 2 V/Div, 5ms/Div
IC 7085 Pin 36, LP Picture Search/Still



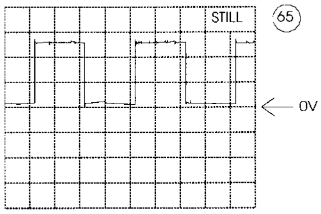
A: DC, 1 V/Div, 10ms/Div
IC 7085 Pin 20



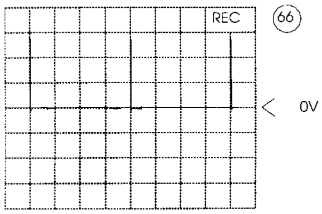
A: DC, 1 V/Div, 10ms/Div
IC 7085 Pin 22



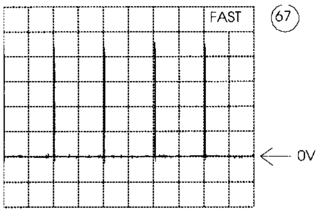
A: DC, 1 V/Div, 10ms/Div
IC 7320 Pin 12



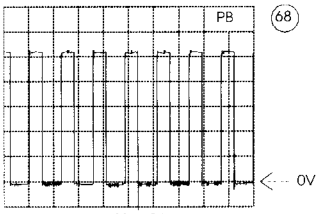
A: DC, 2 V/Div, 10ms/Div
IC 7649 Pin 5



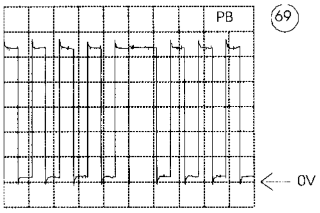
A: DC, 2 V/Div, 5ms/Div
IC 7085 Pin 6



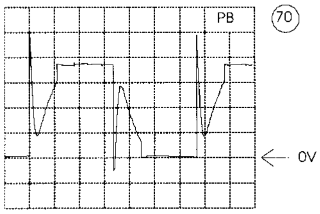
A: DC, 1 V/Div, 10ms/Div
Connector 1530 Pin 9



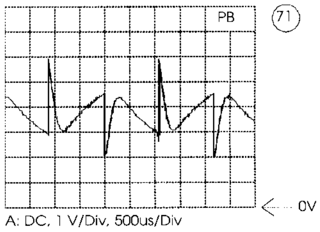
A: DC, 1 V/Div, 20us/Div
IC 7085 Pin 24



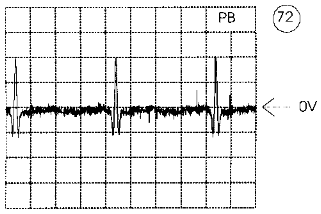
A: DC, 1 V/Div, 2ms/Div
IC 7085 Pin 12



A: DC, 2 V/Div, 1ms/Div
IC 7095 Pin 3/16/18



A: DC, 1 V/Div, 500us/Div
IC 7095 Pin 14



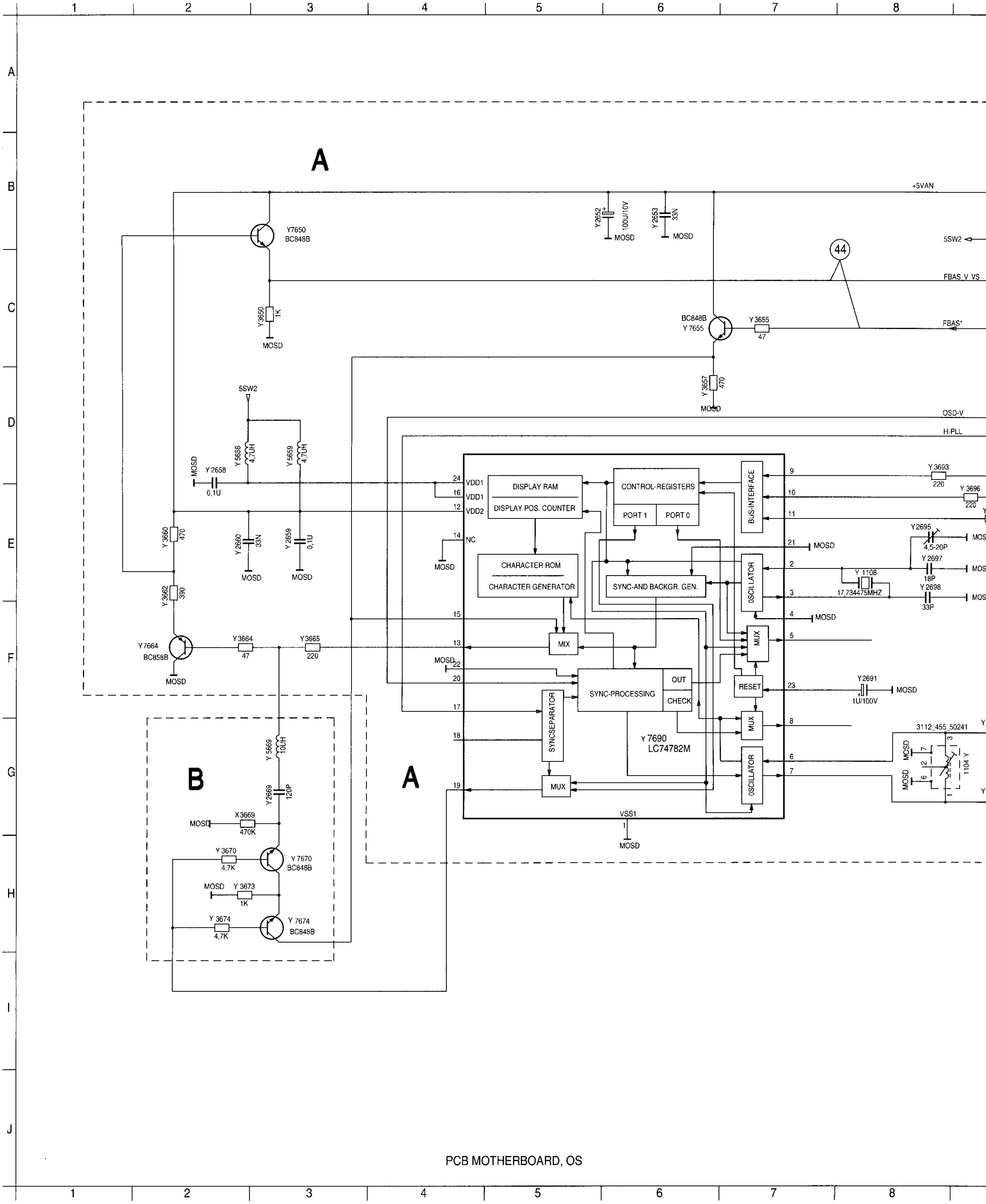
A: DC, 100mV/Div, 10ms/Div
Connector 1501 Pin 5

Interconnections:

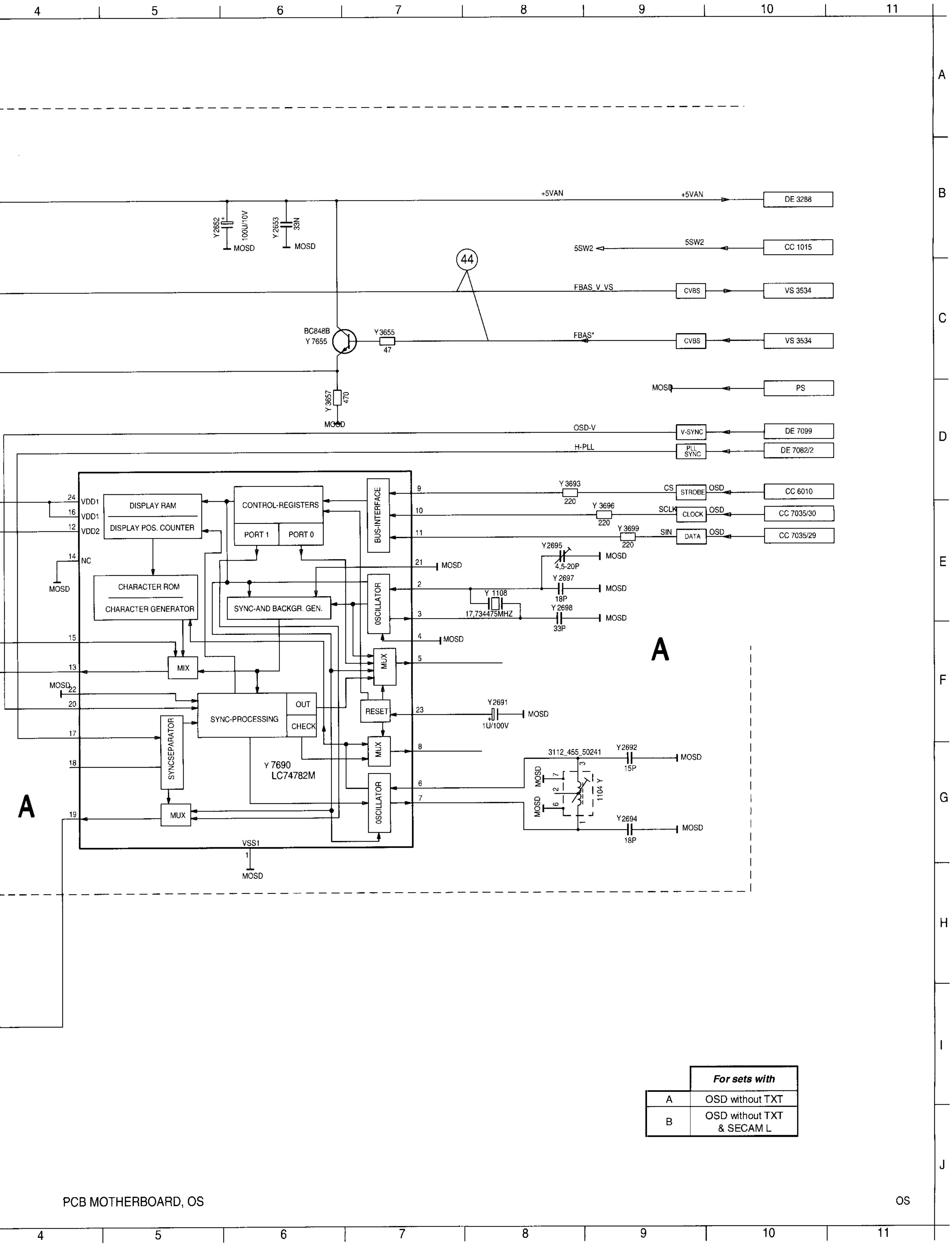
PS page 3-27	SE page 3-35	DE page 3-38	VP page 3-41	VT page 3-46	SF page 3-53
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP page 3-54
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC page 3-57...

Note on the components: "X" components are not used "Y" components are optional

Mother Board - On Screen Display (OS)


A
B
A
+5VAN
5SW2
FBAS_V_VS
FBAS*
OSD-V
H-PLL
44
Y7650
BC848B
Y3650
1K
MOSD
Y2652
100U/10V
Y2653
33N
BC848B
Y 7655
Y 3655
47
Y 3657
470
5SW2
Y 5658
4,7UH
Y 5659
4,7UH
Y 2658
0,1U
Y 2660
33N
Y 2659
0,1U
Y 3660
470
Y 3662
390
Y 7664
BC858B
Y 3664
47
Y 3665
220
Y 5669
10UH
Y2669
120P
X3669
470K
Y 3670
4,7K
Y 7670
BC848B
Y 3673
1K
Y 3674
4,7K
Y 7674
BC848B
VDD1
VDD1
VDD2
NC
DISPLAY RAM
DISPLAY POS. COUNTER
CONTROL-REGISTERS
PORT 1
PORT 0
BUS-INTERFACE
CHARACTER ROM
CHARACTER GENERATOR
SYNC-AND BACKGR. GEN.
OSCILLATOR
MIX
MUX
SYNC-PROCESSING
OUT
CHECK
RESET
SYNCSEPARATOR
MUX
MUX
OSCILLATOR
Y 7690
LC74782M
VSS1
Y 3693
220
Y 3696
220
Y2695
4,5-20P
Y 2697
18P
Y 1108
17,734475MHZ
Y 2698
33P
Y2691
1U/100V
3112_455_50241
1104 Y

PCB MOTHERBOARD, OS


4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
+5VAN
+5VAN
DE 3288
Y2652
100U/10V
MOSD
Y 2653
33N
MOSD
5SW2
5SW2
CC 1015
44
FBAS_V_VS
CVBS
VS 3534
BC848B
Y 7655
Y3655
47
FBAS*
CVBS
VS 3534
MOSD
PS
Y 3657
470
MOSD
OSD-V
V-SYNC
DE 7099
H-PLL
PLL SYNC
DE 7082/2
24
VDD1
16
VDD1
12
VDD2
14
NC
MOSD
DISPLAY RAM
DISPLAY POS. COUNTER
CONTROL-REGISTERS
PORT 1
PORT 0
BUS-INTERFACE
CHARACTER ROM
CHARACTER GENERATOR
SYNC-AND BACKGR. GEN.
OSCILLATOR
MIX
MUX
RESET
SYNC-PROCESSING
OUT
CHECK
SYNCSEPARATOR
MUX
MUX
OSCILLATOR
Y 7690
LC74782M
VSS1
1
MOSD
15
13
MOSD
22
20
17
18
19
9
Y 3693
220
CS
STROBE
OSD
CC 6010
10
Y 3696
220
SCLK
CLOCK
OSD
CC 7035/30
11
Y 3699
220
SIN
DATA
OSD
CC 7035/29
Y2695
4,5-20P
MOSD
21
MOSD
2
Y 2697
18P
MOSD
Y 1108
17,734475MHZ
3
Y 2698
33P
MOSD
4
MOSD
5
A
23
Y2691
1U/100V
MOSD
8
3112_455_50241
Y2692
15P
MOSD
6
7
MOSD
MOSD
1104 Y
Y2694
18P
MOSD
A

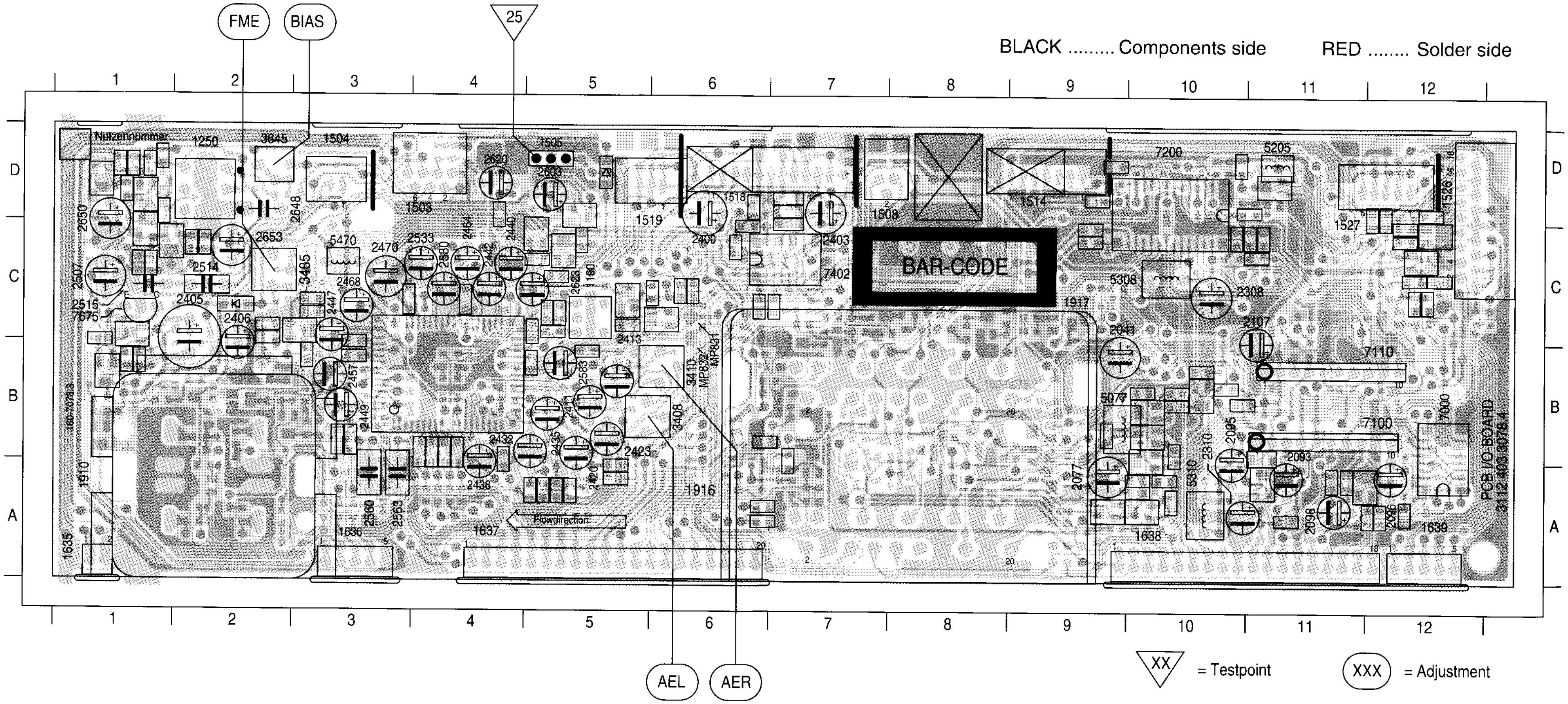
	For sets with
A	OSD without TXT
B	OSD without TXT & SECAM L

PCB MOTHERBOARD, OS

OS

1104	G9
1108	E8
2652	B5
2653	B6
2658	D2
2659	E3
2660	E2
2669	G3
2691	F8
2692	G9
2694	G9
2695	E8
2697	E8
2698	E8
3650	C3
3655	C7
3657	D6
3660	E2
3662	E2
3664	F2
3665	F3
3669	G2
3670	H2
3673	H2
3674	H2
3693	D8
3696	E9
3699	E9
5658	D2
5659	D3
5669	G3
7650	B3
7655	C6
7664	F2
7670	H3
7674	H3
7690	G6

ts side

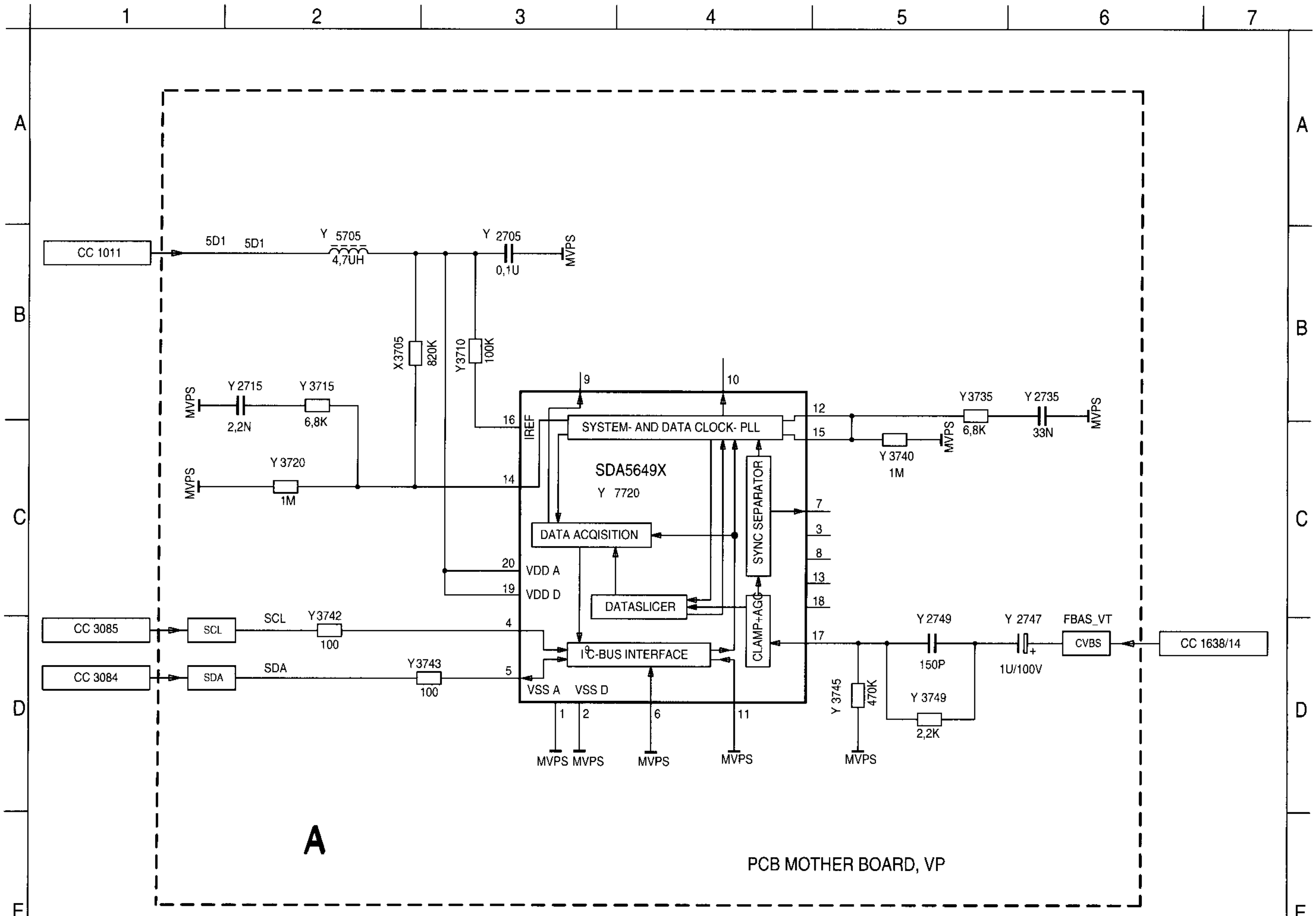

FME
BIAS
25
AEL
AER
BAR-CODE
Nutzennummer
Flowdirection
PCB I/O-BOARD 3112 403 3078.4
1 2 3 4 5 6 7 8 9 10 11 12
A B C D
1250 3645 1504 1503 1505 2620 2603 1519 1518 2400 2403 7402 1508 1514 7200 5205 1527 1526
2650 2507 2515 7675 2405 2514 2653 3485 5470 2468 2470 2533 2530 2464 2440 2442 2623 1190 2413 3410 MP832 MP831 1917 5308 2308 2107 2041 7110
2406 2447 2457 2449 3408 2423 2583 2411 2435 2420 2432 2438 1916 5077 2095 2310 5310 2093 7100 7000 2077 2098 2096
1910 1635 1636 2560 2563 1637 1638 1639

BLACK .... Components side RED .... Solder side

XX = Testpoint XXX = Adjustment

0902	C 8	1508	D 8	1635	A 1	1916	A 8	2096	A 12	2403	D 7	2423	B 5	2447	C 3	2507	C 1	2563	A 3	2650	D 1	5077	B 9	7110	B 11
1190	C 5	1514	D 9	1636	A 3	1917	B 8	2098	A 11	2405	C 2	2432	B 5	2449	B 3	2514	C 2	2583	B 5	2653	C 2	5205	D 11	7675	C 1
1250	D 2	1518	D 7	1637	A 5	2041	B 9	2107	C 11	2406	B 2	2435	B 5	2457	B 3	2515	C 1	2603	D 5	3408	B 6	5308	C 10		
1503	D 4	1519	D 6	1638	A 11	2077	A 9	2308	C 10	2411	B 5	2438	B 4	2464	C 4	2530	C 4	2620	D 4	3410	B 6	5310	A 10		
1504	D 3	1526	D 13	1639	A 12	2093	A 11	2310	A 11	2413	B 5	2440	C 4	2468	C 3	2533	C 4	2623	C 5	3485	C 2	5470	C 3		
1505	D 5	1527	D 12	1910	A 2	2095	B 10	2400	D 6	2420	B 5	2442	C 4	2470	C 3	2560	A 3	2648	D 2	3645	D 2	7100	B 11		

Mother Board - VPS (VP)


1
2
3
4
5
6
7
A
B
C
D
E
CC 1011
5D1
5D1
Y 5705
4,7UH
Y 2705
0,1U
MVPS
X3705
820K
Y3710
100K
MVPS
Y 2715
2,2N
Y 3715
6,8K
MVPS
Y 3720
1M
9
10
16
IREF
SYSTEM- AND DATA CLOCK- PLL
12
15
Y3735
6,8K
Y 2735
33N
MVPS
Y 3740
1M
MVPS
14
SDA5649X
Y 7720
SYNC SEPARATOR
DATA ACQISITION
7
3
8
13
18
17
20
VDD A
19
VDD D
DATASLICER
CLAMP+AGC
CC 3085
SCL
SCL
Y3742
100
4
I²C-BUS INTERFACE
CC 3084
SDA
SDA
Y3743
100
5
VSS A
VSS D
1
2
6
11
MVPS
MVPS
MVPS
MVPS
Y 2749
150P
Y 2747
1U/100V
FBAS_VT
CVBS
CC 1638/14
Y 3745
470K
Y 3749
2,2K
MVPS
A
PCB MOTHER BOARD, VP

2705	B3
2715	B2
2735	B6
2747	D6
2749	D5
3705	B2
3710	B3
3715	B2
3720	C2
3735	B5
3740	C5
3742	D2
3743	D3
3745	D5
3749	D5
5705	B2
7720	C4

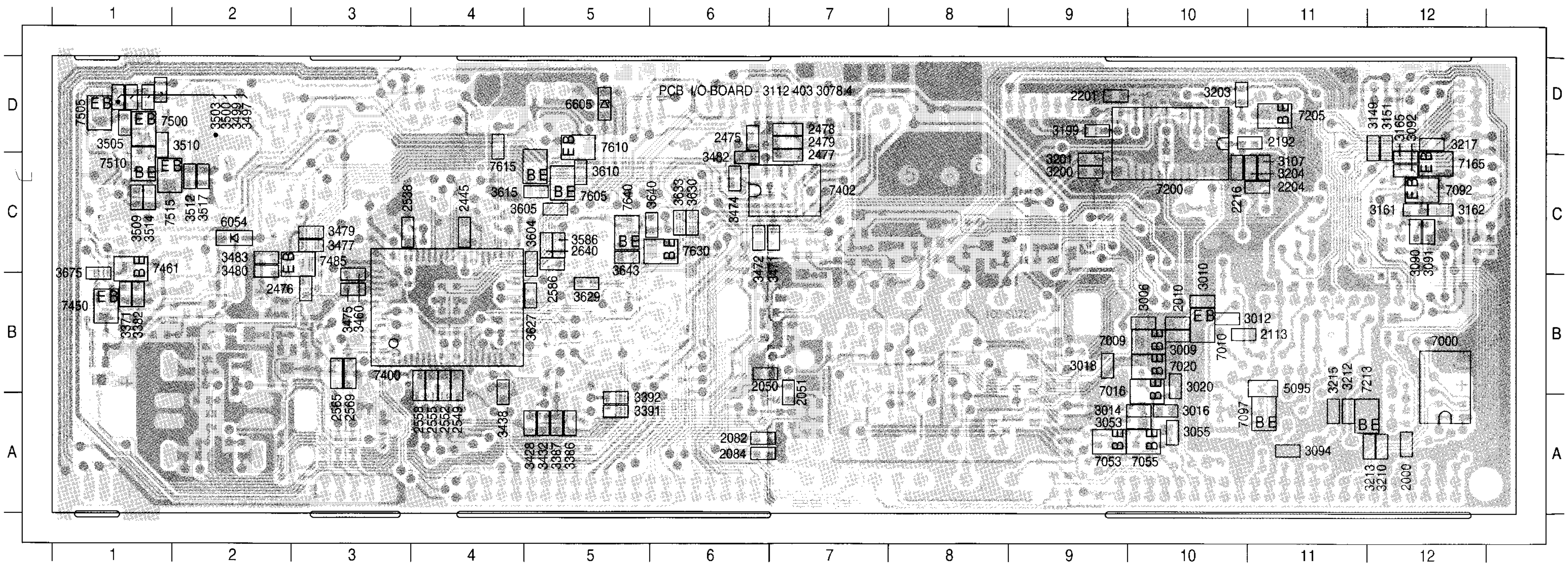
	For sets with
A	VPS or PDC without TXT

F
G
H
I

Intercon

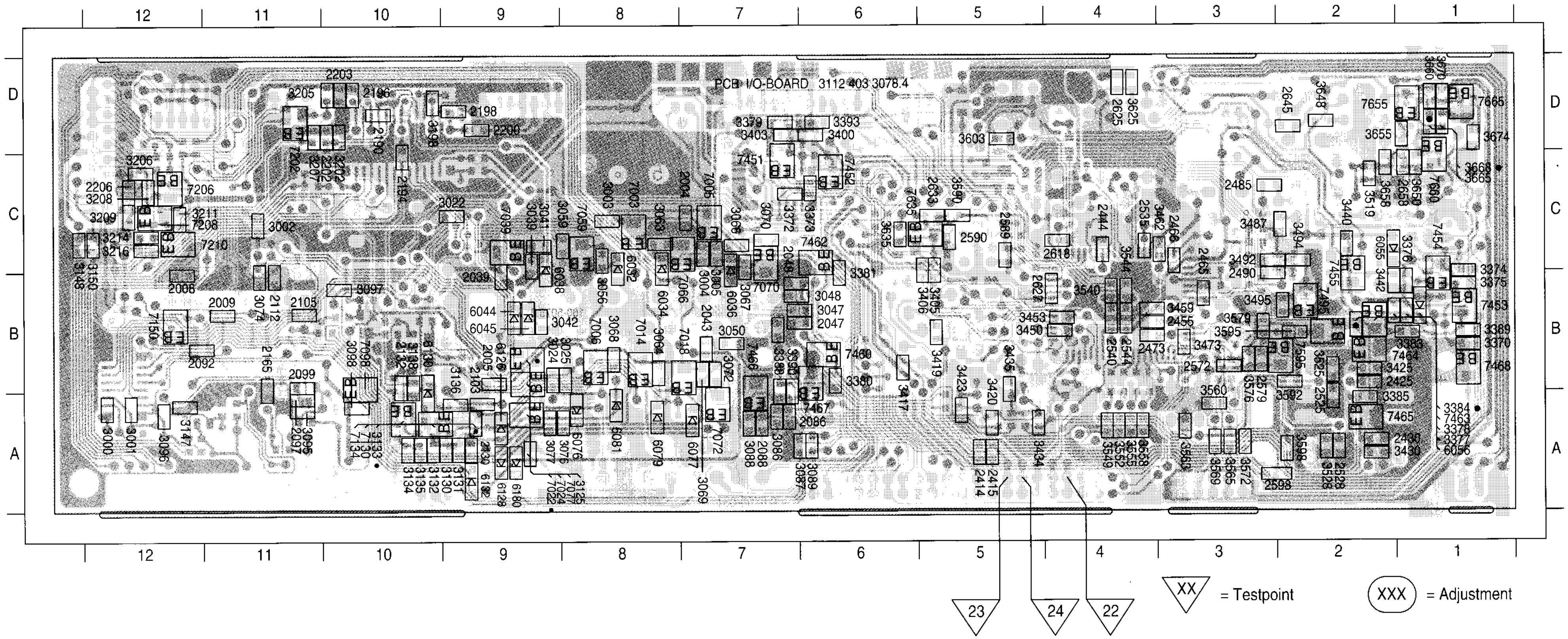
PS page
FE page
TM page
N

BLACK .... Components side RED .... Solder side



2000	A12	2216	C10	2555	B4	3014	A10	3107	C11	3204	C11	3391	A5	3477	C3	3509	C1	3627	B5	6605	D5	7165	C12	7505	D1
2010	B10	2445	C4	2558	B4	3016	A10	3149	D12	3210	A12	3392	A5	3479	C3	3510	D1	3629	B5	7000	B12	7200	D10	7510	C1
2050	B6	2475	D6	2565	B3	3018	B9	3151	D12	3212	A11	3428	A5	3480	C2	3512	C2	3630	C6	7009	B10	7205	D11	7515	C2
2051	B7	2476	B3	2569	B3	3020	B10	3161	C12	3213	A12	3432	A5	3482	C6	3514	C1	3633	C6	7010	B10	7213	A12	7605	C5
2082	A6	2477	D7	2586	C5	3053	A10	3162	C12	3215	A11	3438	B4	3483	C2	3517	C2	3640	C6	7016	B10	7400	B4	7610	D5
2084	A6	2478	D7	2640	C5	3055	A10	3165	C12	3217	D12	3460	C3	3497	D1	3586	C5	3643	C5	7020	B10	7402	C7	7615	C5
2113	B10	2479	D7	3006	B10	3090	C12	3199	D9	3371	B1	3471	C7	3499	D1	3604	C5	3675	C1	7053	A9	7450	B1	7630	C6
2192	D11	2538	C4	3009	B10	3091	C12	3200	C9	3382	B1	3472	C6	3500	D1	3605	C5	5095	B11	7055	A10	7461	C1	7640	C5
2201	D9	2549	B4	3010	B10	3092	C12	3201	C9	3386	A5	3474	C6	3503	D1	3610	C5	5620	D4	7092	C12	7485	C3		
2204	C11	2552	B4	3012	B10	3094	A11	3203	D10	3387	A5	3475	B3	3505	D1	3615	C5	6054	C2	7097	A11	7500	D1		

BLACK .... Solder side RED .... Components side

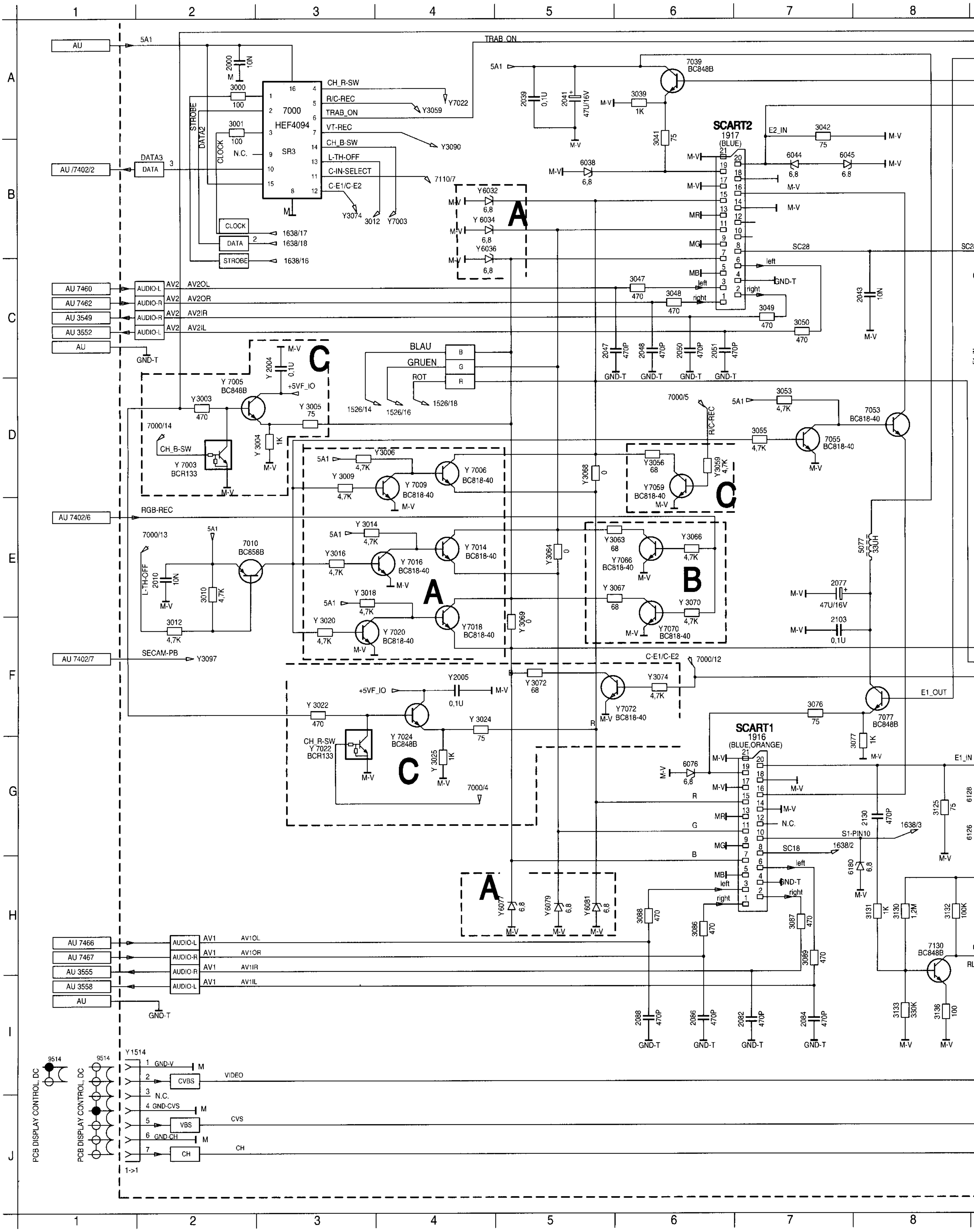


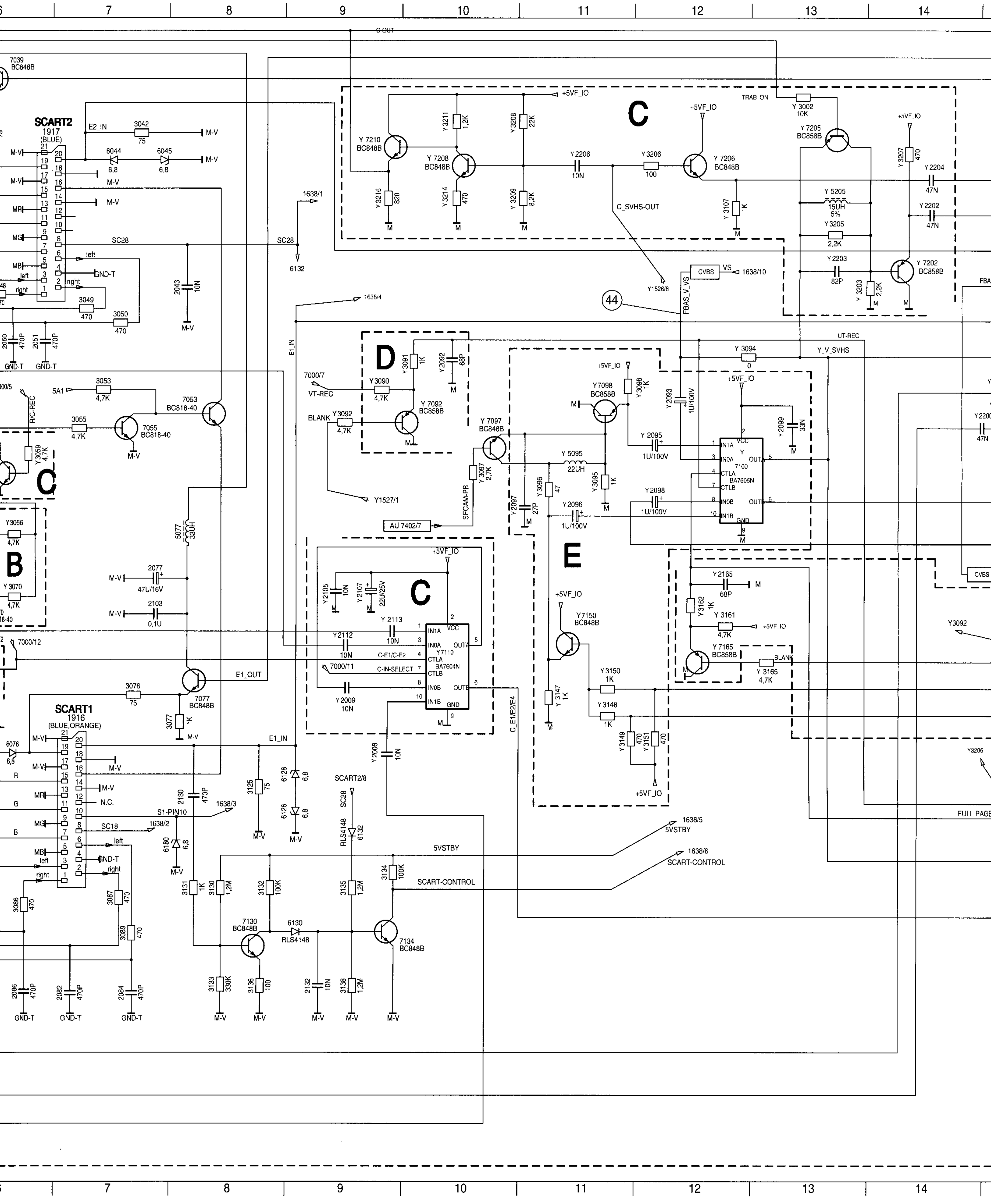
XX = Testpoint

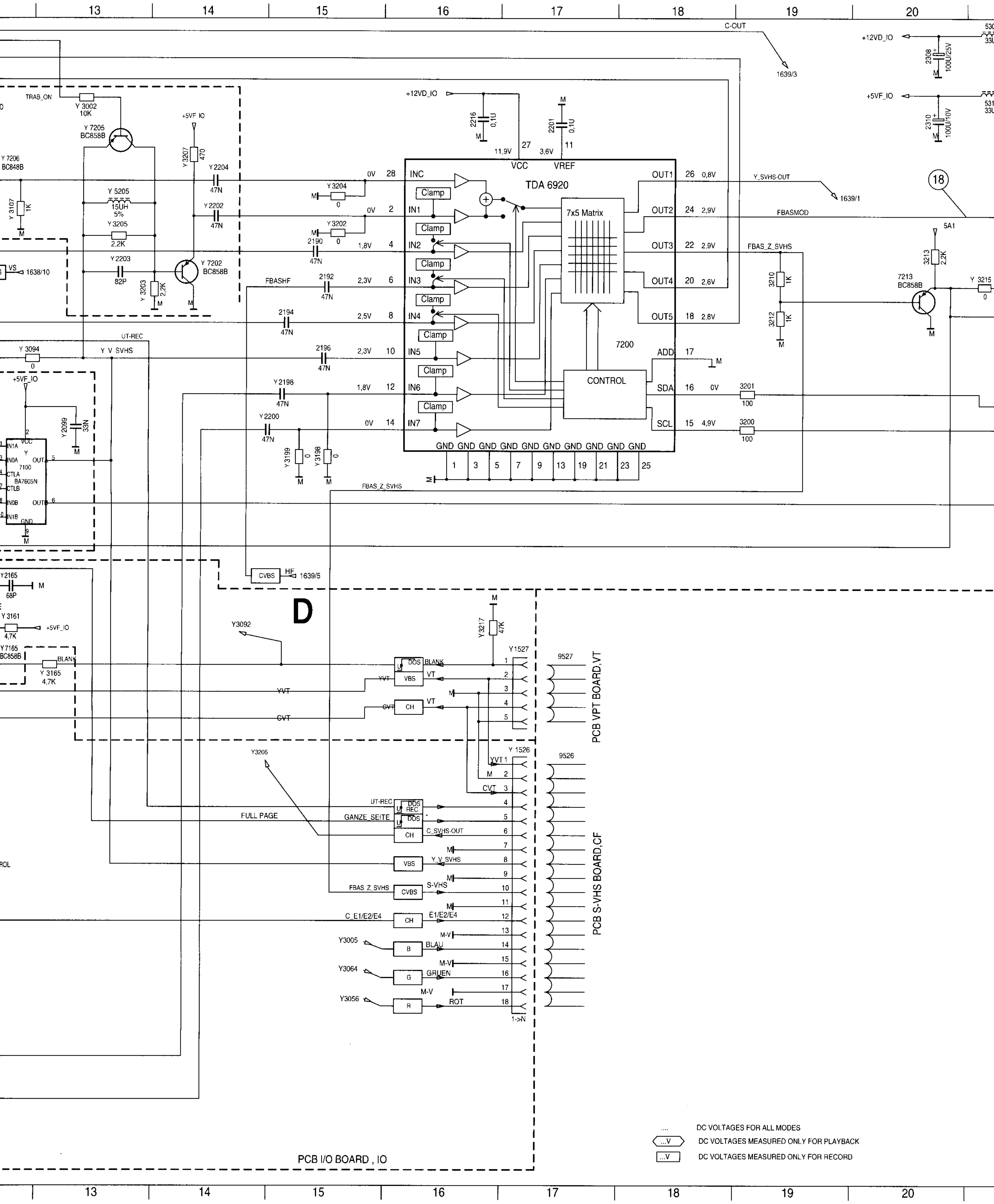
XXX = Adjustment

2004	C 7
2005	B 9
2008	C 12
2009	B 11
2039	B 9
2043	B 7
2047	B 7
2048	B 7
2086	A 7
2088	A 7
2092	B 12
2097	A 11
2099	B 11
2103	A 9
2105	B 11
2165	B 11
2190	D 10
2194	C 10
2196	D 10
2198	D 9
2200	D 9
2202	D 10
2203	D 10
2206	C 12
2414	A 5
2415	A 5
2425	B 2
2430	A 2
2444	C 4
2455	B 4
2485	C 3
2490	C 3
2525	A 2
2528	A 2
2535	C 4
2540	B 4
2544	B 4
2572	B 3
2579	B 3
2589	C 5
2590	C 5
2598	A 3
2618	C 4
2625	D 4
2627	B 4
3000	A 12
3001	A 12
3002	C 11
3003	C 8
3004	C 7
3005	C 7
3022	C 9
3024	B 9
3025	B 8
3039	C 9
3041	C 9
3042	B 9
3047	B 7
3048	B 7
3049	B 7
3063	C 8
3064	B 8
3066	C 7
3067	C 7
3068	B 8
3069	B 7
3070	C 7
3072	B 7
3074	B 11
3076	A 9
3077	A 9
3086	A 7
3087	A 7
3088	A 7
3089	A 6
3098	A 10
3125	A 9
3130	A 9
3131	A 9
3132	A 10
3133	A 9
3134	A 10
3135	A 10
3136	A 9
3138	B 10
3147	A 12
3148	C 13
3150	C 12
3198	D 10
3202	D 10
3208	C 12
3209	C 12
3211	C 12
3214	C 12
3216	C 12
3370	B 1
3372	C 7
3373	C 6
3374	C 1
3375	B 1
3376	B 1
3377	B 1
3378	B 2
3379	D 7
3380	B 6
3385	A 2
3388	B 7
3389	B 1
3390	B 7
3393	D 6
3400	D 6
3403	D 7
3405	C 5
3406	C 5
3417	B 6
3419	B 5
3420	A 5
3423	A 5
3425	B 2
3430	A 2
3442	B 2
3450	B 4
3453	B 4
3459	B 4
3462	C 4
3473	B 3
3487	C 2
3492	C 3
3494	C 2
3495	B 2
3519	C 2
3525	B 2
3528	A 2
3540	B 4
3544	B 4
3558	A 4
3560	A 3
3563	A 3
3565	A 3
3569	A 3
3572	A 3
3576	B 3
3579	B 3
3590	C 5
3592	B 2
3595	B 2
3598	A 2
3603	D 5
3625	D 4
3635	C 6
3658	C 2
3660	D 1
3665	D 1
3668	D 1
3670	D 1
3674	D 1
6032	C 8
6034	C 8
6036	C 7
6038	C 9
6044	B 9
6045	B 9
6055	C 2
6056	B 1
6076	A 8
6126	A 9
6128	A 9
6130	B 10
6132	A 9
6180	A 9
7003	C 8
7005	C 7
7006	B 8
7014	B 8
7018	B 7
7022	B 9
7024	B 9
7039	C 9
7059	C 8
7066	C 8
7098	B 10
7130	A 10
7134	A 10
7150	B 12
7202	D 11
7206	C 12
7208	C 12
7210	C 12
7451	C 7
7452	C 6
7453	B 1
7454	B 1
7455	B 2
7460	B 6
7462	C 6
7466	B 7
7467	B 6
7468	B 1
7495	B 2
7595	B 2
7600	B 2
7635	C 5
7655	D 1
7660	C 1
7665	D 1

Input/Output Board - In/Out (IO)


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
AU
5A1
TRAB_ON
2000
10N
M
3000
100
16
4
CH_R-SW
Y7022
1
2
7000
HEF4094
5
R/C-REC
Y3059
TRAB_ON
6
VT-REC
7
Y3090
STROBE
DATA2
3001
100
3
CLOCK
N.C.
9
SR3
14
CH_B-SW
13
L-TH-OFF
10
11
C-IN-SELECT
7110/7
15
8
12
C-E1/C-E2
AU /7402/2
DATA3
DATA
Y3074
3012
Y7003
CLOCK
1638/17
DATA
1638/18
STROBE
1638/16
5A1
2039
0,1U
2041
47U/16V
M-V
3039
1K
7039
BC848B
3041
75
SCART2
1917
(BLUE)
E2_IN
3042
75
6044
6,8
6045
6,8
6038
6,8
Y6032
6,8
Y 6034
6,8
Y6036
6,8
A
MR
MG
MB
SC28
left
right
GND-T
3047
470
3048
470
3049
470
3050
470
2043
10N
AU 7460
AU 7462
AU 3549
AU 3552
AUDIO-L
AUDIO-R
AUDIO-R
AUDIO-L
AV2
AV2OL
AV2OR
AV2IR
AV2IL
GND-T
2047
470P
2048
470P
2050
470P
2051
470P
C
Y 2004
0,1U
+5VF_IO
Y 7005
BC848B
Y3003
470
Y 3005
75
7000/14
CH_B-SW
Y 7003
BCR133
Y 3004
1K
BLAU
GRUEN
ROT
B
G
R
1526/14
1526/16
1526/18
7000/5
R/C-REC
3053
4,7K
7053
BC818-40
3055
4,7K
7055
BC818-40
Y3006
4,7K
Y 7006
BC818-40
Y 3009
4,7K
Y 7009
BC818-40
Y3068
0
Y3056
68
Y7059
BC818-40
Y3059
4,7K
AU 7402/6
RGB-REC
7000/13
7010
BC858B
L-TH-OFF
2010
10N
3010
4,7K
3012
4,7K
Y 3014
4,7K
Y 7014
BC818-40
Y3016
4,7K
Y 7016
BC818-40
Y3064
0
Y3063
68
Y7066
BC818-40
Y3066
4,7K
B
5077
33UH
2077
47U/16V
2103
0,1U
Y 3018
4,7K
Y3020
4,7K
Y 7020
BC818-40
Y7018
BC818-40
Y 3069
0
Y 3067
68
Y 3070
4,7K
Y7070
BC818-40
AU 7402/7
SECAM-PB
Y3097
C-E1/C-E2
7000/12
Y2005
0,1U
+5VF_IO
Y 3072
68
Y3074
4,7K
Y7072
BC818-40
E1_OUT
Y 3022
470
Y 7024
BC848B
Y 3024
75
3076
75
7077
BC848B
3077
1K
CH_R-SW
Y 7022
BCR133
Y 3025
1K
7000/4
SCART1
1916
(BLUE,ORANGE)
6076
6,8
E1_IN
2130
470P
S1-PIN10
1638/3
SC18
1638/2
6180
6,8
3125
75
6128
6126
N.C.
Y6077
6,8
Y6079
6,8
Y6081
6,8
3088
470
3086
470
3087
470
3089
470
3131
1K
3130
1,2M
3132
100K
7130
BC848B
AU 7466
AU 7467
AU 3555
AU 3558
AV1
AV1OL
AV1OR
AV1IR
AV1IL
2088
470P
2086
470P
2082
470P
2084
470P
3133
330K
3136
100
9514
PCB DISPLAY CONTROL, DC
Y1514
GND-V
CVBS
VIDEO
N.C.
GND-CVS
VBS
CVS
GND-CH
CH
1->1

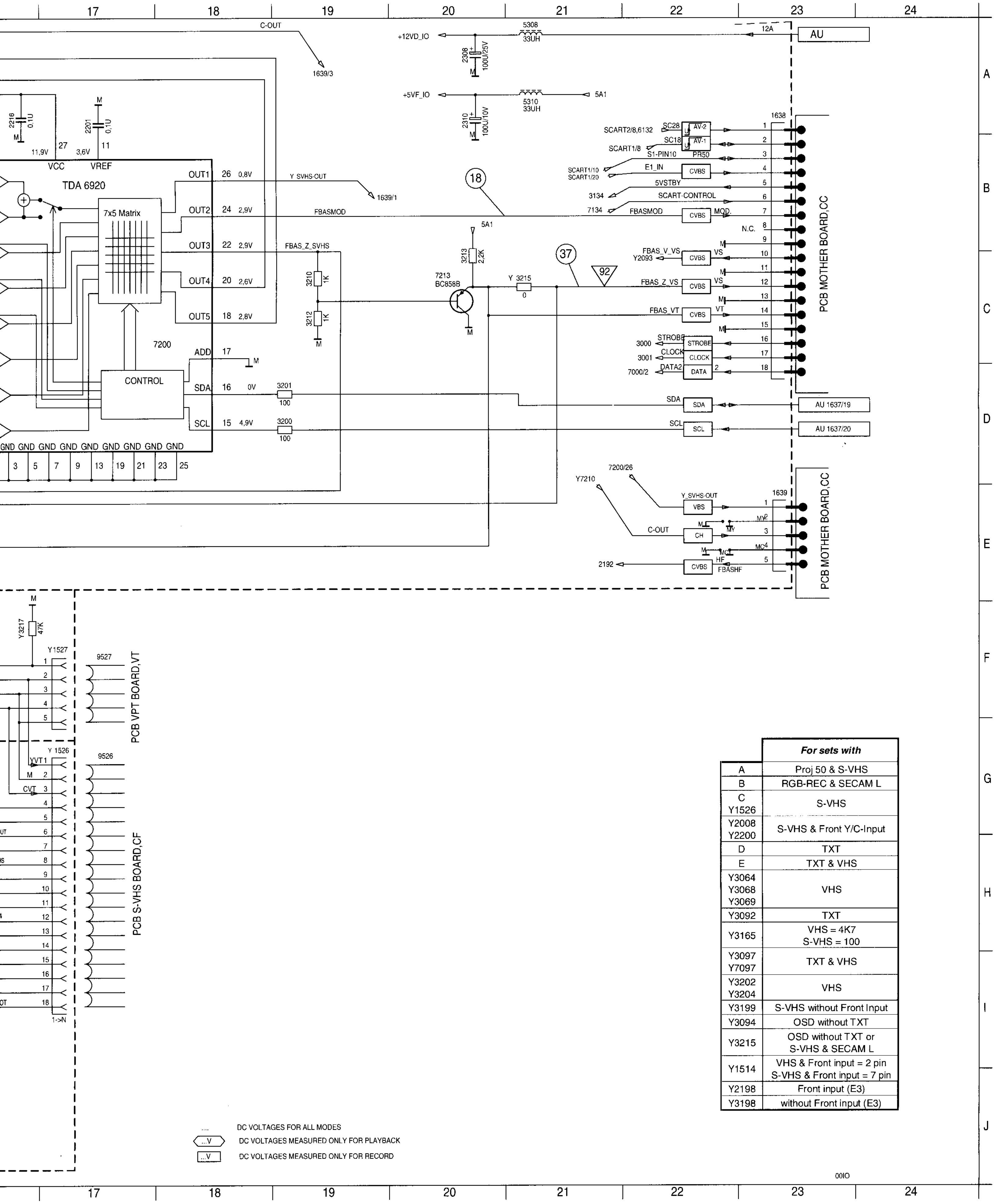

6
7
8
9
10
11
12
13
14
G-OUT
7039
BC848B
+5VF_IO
C
TRAB ON
Y 3002
10K
Y 7210
BC848B
Y 3211
1,2K
Y 3208
22K
Y 7208
BC848B
Y 2206
10N
Y 3206
100
Y 7206
BC848B
Y 7205
BC858B
Y 3207
470
Y 2204
47N
Y 3216
820
Y 3214
470
Y 3209
8,2K
Y 3107
1K
Y 5205
15UH
5%
Y 2202
47N
Y 3205
2,2K
C_SVHS-OUT
Y 2203
82P
Y 3203
2,2K
Y 7202
BC858B
M
SCART2
1917
(BLUE)
E2_IN
3042
75
M-V
6044
6,8
6045
6,8
1638/1
SC28
6132
2043
10N
left
right
GND-T
3049
470
3050
470
2050
470P
2051
470P
MR
MG
MB
CVBS
VS
1638/10
Y1526/6
FBAS_V_VS
44
1638/4
E1_IN
FBA
UT-REC
Y 3094
0
Y_V_SVHS
D
Y 3091
1K
Y 2092
68P
7000/7
VT-REC
Y 3090
4,7K
Y 7092
BC858B
BLANK
Y 3092
4,7K
Y1527/1
+5VF_IO
Y7098
BC858B
Y 3098
1K
Y 2093
1U/100V
Y 2099
33N
Y 7097
BC848B
Y 2095
1U/100V
Y 5095
22UH
Y 3097
2,7K
Y 3096
47
Y 3095
1K
Y 2097
27P
Y 2096
1U/100V
Y 2098
1U/100V
SECAM-PB
AU 7402/7
IN1A
VCC
IN0A
OUTA
CTLA
CTLB
IN0B
OUTB
IN1B
GND
7100
BA7605N
Y 2200
47N
E
CVBS
7000/5
R/C-REC
5A1
3053
4,7K
7053
BC818-40
3055
4,7K
7055
BC818-40
Y 3059
4,7K
C
B
Y 3066
4,7K
Y 3070
4,7K
5077
330UH
2077
47U/16V
2103
0,1U
+5VF_IO
Y 2105
10N
Y 2107
22U/25V
C
Y 2113
10N
Y 2112
10N
Y7110
BA7604N
C-E1/C-E2
7000/11
C-IN-SELECT
Y 2009
10N
7000/12
E1_OUT
3076
75
7077
BC848B
3077
1K
SCART1
1916
(BLUE,ORANGE)
6076
6,8
R
G
B
N.C.
Y 2165
68P
Y 3162
1K
Y 3161
4,7K
Y7165
BC858B
BLANK
Y 3165
4,7K
Y3092
Y7150
BC848B
Y 3147
1K
Y 3150
1K
Y 3148
1K
Y 3149
470
Y 3151
470
Y3206
FULL PAGE
C_E1/E2/E4
Y 2008
10N
3125
75
6128
6,8
6126
6,8
2130
470P
1638/3
S1-PIN10
SC18
1638/2
6180
6,8
SCART2/8
SC28
RLS4148
6132
5VSTBY
1638/5
5VSTBY
1638/6
SCART-CONTROL
SCART-CONTROL
3131
1K
3130
1,2M
3132
100K
3135
1,2M
3134
100K
7130
BC848B
6130
RLS4148
7134
BC848B
3086
470
3087
470
3089
470
3133
330K
3136
100
2132
10N
3138
1,2M
2086
470P
2082
470P
2084
470P
GND-T


13
14
15
16
17
18
19
20
C-OUT
1639/3
+12VD_IO
2308
100U/25V
+5VF_IO
2310
100U/10V
TRAB_ON
Y 3002
10K
Y 7205
BC858B
Y 7206
BC848B
Y 3107
1K
+5VF IO
Y 3207
470
Y 2204
47N
Y 5205
15UH
5%
Y 2202
47N
Y 3205
2,2K
Y 2203
82P
Y 3203
2,2K
Y 7202
BC858B
1638/10
Y 3204
Y 3202
2190
47N
FBASHF
2192
47N
2194
47N
2196
47N
Y 3094
UT-REC
Y V SVHS
+5VF_IO
Y 2099
33N
7100
BA7605N
Y 2198
47N
Y 2200
47N
Y 3199
Y 3198
FBAS_Z_SVHS
2216
0,1U
2201
0,1U
11,9V
3,6V
VCC
VREF
TDA 6920
INC
IN1
IN2
IN3
IN4
IN5
IN6
IN7
Clamp
7x5 Matrix
CONTROL
7200
OUT1
OUT2
OUT3
OUT4
OUT5
ADD
SDA
SCL
GND
Y_SVHS-OUT
1639/1
FBASMOD
FBAS_Z_SVHS
3201
100
3200
100
18
5A1
3213
2,2K
3210
1K
3212
1K
7213
BC858B
Y 3215
Y 2165
68P
Y 3161
4,7K
Y 7165
BC858B
BLANK
Y 3165
4,7K
CVBS
HF
1639/5
D
Y3092
Y3217
47K
Y 1527
9527
PCB VPT BOARD,VT
DOS
VBS
CH
YVT
CVT
Y 1526
9526
Y3206
UT-REC
FULL PAGE
GANZE SEITE
C_SVHS-OUT
Y_V_SVHS
FBAS Z SVHS
S-VHS
C_E1/E2/E4
E1/E2/E4
Y3005
BLAU
Y3064
GRUEN
Y3056
ROT
M-V
PCB S-VHS BOARD,CF
PCB I/O BOARD , IO

.... DC VOLTAGES FOR ALL MODES

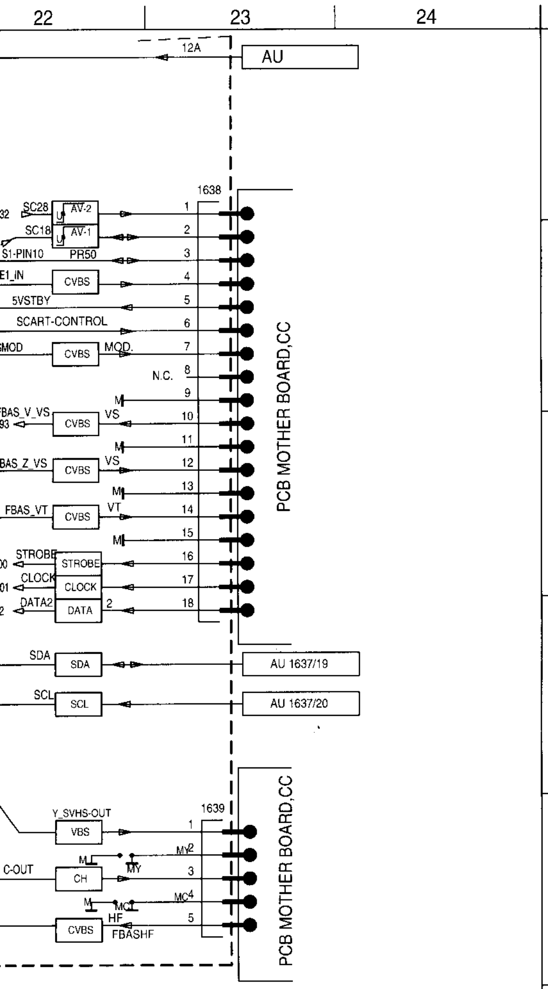
...V DC VOLTAGES MEASURED ONLY FOR PLAYBACK

...V DC VOLTAGES MEASURED ONLY FOR RECORD


17
18
19
20
21
22
23
24
A
B
C
D
E
F
G
H
I
J
C-OUT
1639/3
+12VD_IO
5308
33UH
2308
100U/25V
M
12A
AU
+5VF_IO
5310
33UH
5A1
2310
100U/10V
2216
0,1U
2201
0,1U
11,9V
27
3,6V
11
VCC
VREF
TDA 6920
7x5 Matrix
7200
CONTROL
OUT1
26
0,8V
OUT2
24
2,9V
OUT3
22
2,9V
OUT4
20
2,6V
OUT5
18
2,8V
ADD
17
SDA
16
0V
SCL
15
4,9V
GND GND GND GND GND GND GND GND GND
3 5 7 9 13 19 21 23 25
Y SVHS-OUT
1639/1
FBASMOD
FBAS_Z_SVHS
3210
1K
3212
1K
3213
2,2K
7213
BC858B
Y 3215
0
3201
100
3200
100
18
37
92
1638
SCART2/8,6132
SC28
AV-2
SCART1/8
SC18
AV-1
S1-PIN10
PR50
SCART1/10
SCART1/20
E1_IN
CVBS
5VSTBY
3134
SCART-CONTROL
7134
FBASMOD
MOD.
N.C.
FBAS_V_VS
Y2093
VS
FBAS_Z_VS
FBAS_VT
VT
STROBE
CLOCK
DATA2
3000
3001
7000/2
DATA
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
PCB MOTHER BOARD,CC
AU 1637/19
AU 1637/20
7200/26
Y7210
Y_SVHS-OUT
VBS
1639
C-OUT
CH
MY
MC
HF
FBASHF
2192
PCB MOTHER BOARD,CC
Y3217
47K
Y1527
9527
PCB VPT BOARD,VT
Y 1526
YVT1
CVT
9526
PCB S-VHS BOARD,CF
1->N
00IO

	For sets with
A	Proj 50 & S-VHS
B	RGB-REC & SECAM L
C Y1526	S-VHS
Y2008 Y2200	S-VHS & Front Y/C-Input
D	TXT
E	TXT & VHS
Y3064 Y3068 Y3069	VHS
Y3092	TXT
Y3165	VHS = 4K7 S-VHS = 100
Y3097 Y7097	TXT & VHS
Y3202 Y3204	VHS
Y3199	S-VHS without Front Input
Y3094	OSD without TXT
Y3215	OSD without TXT or S-VHS & SECAM L
Y1514	VHS & Front input = 2 pin S-VHS & Front input = 7 pin
Y2198	Front input (E3)
Y3198	without Front input (E3)

.... DC VOLTAGES FOR ALL MODES
⟨...V⟩ DC VOLTAGES MEASURED ONLY FOR PLAYBACK
[...V] DC VOLTAGES MEASURED ONLY FOR RECORD


22
23
24
12A
AU
1638
SC28
AV-2
SC18
AV-1
S1-PIN10
PR50
E1_IN
CVBS
5VSTBY
SCART-CONTROL
MOD
CVBS
MOD.
N.C.
FBAS_V_VS
CVBS
VS
M
FBAS_Z_VS
CVBS
VS
M
FBAS_VT
CVBS
VT
M
STROBE
STROBE
CLOCK
CLOCK
DATA2
DATA
2
1
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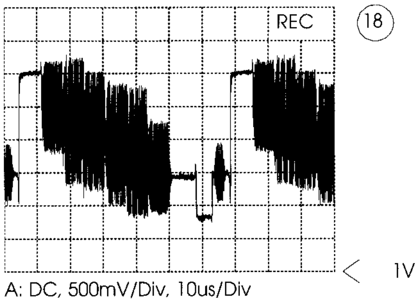
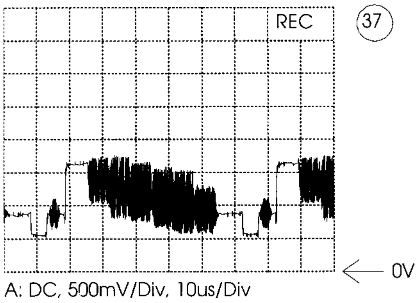
12
13
14
15
16
17
18
PCB MOTHER BOARD,CC
SDA
SDA
AU 1637/19
SCL
SCL
AU 1637/20
1639
Y_SVHS-OUT
VBS
C-OUT
CH
MY
MC
HF
CVBS
FBASHF
1
2
3
4
5
PCB MOTHER BOARD,CC
00IO
22
23
24

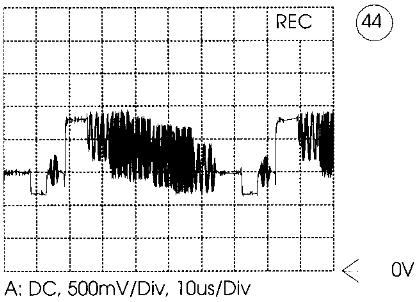
1514	I2	3086	H6	7100	D12
1526	G17	3087	H7	7110	F10
1527	F17	3088	H6	7130	H8
1638	A23	3089	H7	7134	H10
1639	E23	3090	D9	7150	F11
1916	G7	3091	C10	7165	F12
1917	A6	3092	D9	7200	C18
2000	A2	3094	C12	7202	C14
2004	C3	3095	D11	7205	A13
2005	F4	3096	E11	7206	B12
2008	G9	3097	D10	7208	B10
2009	F9	3098	D12	7210	B9
2010	E2	3107	B12	7213	C20
2039	A5	3125	G8		
2041	A5	3130	H8		
2043	C8	3131	H8		
2047	C5	3132	H8		
2048	C6	3133	I8		
2050	C6	3134	H9		
2051	C6	3135	H9		
2077	E7	3136	I8		
2082	I7	3138	I9		
2084	I7	3147	F11		
2086	I6	3148	F11		
2088	I6	3149	G11		
2092	C10	3150	F11		
2093	D12	3151	G12		
2095	D12	3161	F12		
2096	E11	3162	F12		
2097	E10	3165	F13		
2098	E12	3198	D15		
2099	D13	3199	D15		
2103	F7	3200	D19		
2105	E9	3201	D19		
2107	E9	3202	B15		
2112	F9	3203	C13		
2113	F9	3204	B15		
2130	G8	3205	B13		
2132	I9	3206	B12		
2165	E12	3207	B14		
2190	B15	3208	A10		
2192	C15	3209	B10		
2194	C15	3210	C19		
2196	C15	3211	A10		
2198	D15	3212	C19		
2200	D15	3213	C20		
2201	A17	3214	B10		
2202	B14	3215	C21		
2203	C13	3216	B9		
2204	B14	3217	F16		
2206	B11	5077	E8		
2216	A16	5095	D11		
2308	A20	5205	B13		
2310	A20	5308	A21		
3000	A2	5310	A21		
3001	A2	6032	B4		
3002	A13	6034	B4		
3003	D2	6036	B4		
3004	D3	6038	B5		
3005	D3	6044	B7		
3006	D4	6045	B7		
3009	D3	6076	G6		
3010	E2	6077	H5		
3012	F2	6079	H5		
3014	E3	6081	H5		
3016	E3	6126	G8		
3018	E3	6128	G8		
3020	F3	6130	H9		
3022	F3	6132	H9		
3024	F4	6180	H7		
3025	G4	7000	A3		
3039	A6	7003	D2		
3041	B6	7005	D2		
3042	A7	7006	D4		
3047	C6	7009	D4		
3048	C6	7010	E2		
3049	C7	7014	E4		
3050	C7	7016	E4		
3053	D7	7018	F4		
3055	D7	7020	F4		
3056	D6	7022	G3		
3059	D6	7024	G4		
3063	E6	7039	A6		
3064	E5	7053	D8		
3066	E6	7055	D7		
3067	E6	7059	D6		
3068	D5	7066	E6		
3069	F5	7070	F6		
3070	E6	7072	F6		
3072	F5	7077	F8		
3074	F6	7092	D10		
3076	F7	7097	D10		
3077	G8	7098	D11		



A: DC, 500mV/Div, 10us/Div
Connector 1638 Pin 7



A: DC, 500mV/Div, 10us/Div
Connector 1638 Pin 12



A: DC, 500mV/Div, 10us/Div
Connector 1638 Pin 10

	For sets with
A	Proj 50 & S-VHS
B	RGB-REC & SECAM L
C Y1526	S-VHS
Y2008 Y2200	S-VHS & Front Y/C-Input
D	TXT
E	TXT & VHS
Y3064 Y3068 Y3069	VHS
Y3092	TXT
Y3165	VHS = 4K7 S-VHS = 100
Y3097 Y7097	TXT & VHS
Y3202 Y3204	VHS
Y3199	S-VHS without Front Input
Y3094	OSD without TXT
Y3215	OSD without TXT or S-VHS & SECAM L
Y1514	VHS & Front input = 2 pin S-VHS & Front input = 7 pin
Y2198	Front input (E3)
Y3198	without Front input (E3)

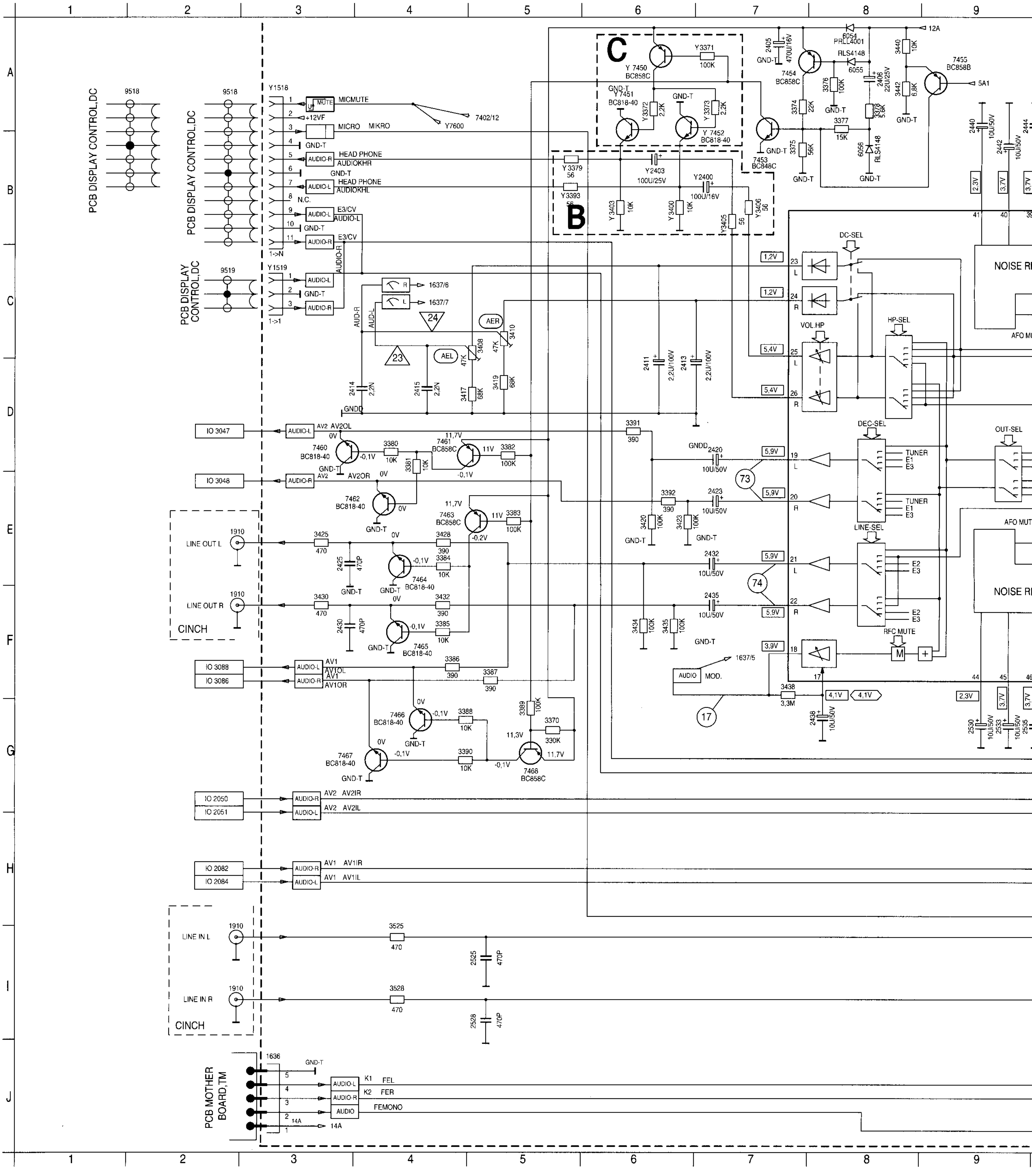
Interconnections:

PS page 3-27	SE page 3-35	DE page 3-38	VP page 3-41	VT page 3-46	SF page 3-53
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP page 3-54
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC page 3-57...

Note on the components: "X" components are not used "Y" components are optional

Input/Output Board - Audio (AU)

1190 H14	1518 A3	1910 E2	2406 A8	2423 E7	2440 A9	2455 A13	2470 B17	2479 E22	2525 I5	2540 G10	2560 H12	2583 G13	2618 G15	2640 H14	3370 G5	3376 A8	3382 D5	3388 G4	3400 B6	3417 D4	3430 F3
1250 I18	1519 C3	1910 I2	2411 D6	2425 E3	2442 B9	2457 B13	2473 B18	2485 C19	2528 I5	2544 G11	2563 H12	2586 G14	2620 G15	2645 I17	3371 A7	3377 A8	3383 E5	3389 G5	3403 B6	3419 D5	3432 F4
1503 G22	1635 F22	1910 H2	2413 D6	2430 F3	2444 A9	2464 B15	2475 D21	2490 D17	2530 G9	2549 G11	2565 G12	2589 H14	2623 G16	2648 J17	3372 A6	3378 A8	3384 E4	3390 G4	3405 B7	3420 E6	3434 F6
1504 F22	1636 J3	2400 B7	2414 D4	2432 E7	2445 B10	2465 B15	2476 C17	2507 E19	2533 G9	2552 G11	2569 G12	2590 I14	2625 G16	2650 H18	3373 A7	3379 B5	3385 F4	3391 D6	3406 B7	3423 E6	3435 F6
1505 H22	1637 A22	2403 B6	2415 D4	2435 F7	2447 A12	2466 B16	2477 E21	2514 F20	2535 G9	2555 G11	2572 G13	2598 J13	2627 F17	2653 I18	3374 A7	3380 D4	3386 F4	3392 E6	3408 C5	3425 E3	3438 F7
1508 C22	1910 F2	2405 A7	2420 D7	2438 G8	2449 A12	2468 B17	2478 E21	2515 F20	2538 G10	2558 G11	2579 H13	2603 G15	2633 I14	2658 I18	3375 B7	3381 D4	3387 F5	3393 B5	3410 C5	3428 E4	3440 A8



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A
B
C
D
E
F
G
H
I
J
PCB DISPLAY CONTROL,DC
9518
9519
Y1518
MICMUTE
MUTE
+12VF
MICRO
MIKRO
7402/12
Y7600
GND-T
HEAD PHONE
AUDIOKHR
AUDIOKHL
N.C.
E3/CV
AUDIO-L
AUDIO-R
1->N
Y1519
1->1
1637/6
1637/7
AUD-R
AUD-L
24
23
AER
AEL
3408
47K
3410
3417
68K
3419
2414
2.2N
2415
GNDD
IO 3047
IO 3048
AV2 AV2OL
AV2OR
7460
BC818-40
7461
BC858C
3380
10K
3381
3382
100K
11,7V
11V
-0,1V
0V
7462
7463
3383
-0,2V
LINE OUT L
LINE OUT R
1910
CINCH
3425
470
2425
470P
3428
390
3384
7464
3430
2430
3432
3385
7465
IO 3088
IO 3086
AV1
AV1OL
AV1OR
3386
3387
3389
7466
3388
3370
330K
11,3V
7467
3390
7468
IO 2050
IO 2051
AV2 AV2IR
AV2 AV2IL
IO 2082
IO 2084
AV1 AV1IR
AV1 AV1IL
LINE IN L
LINE IN R
3525
2525
3528
2528
PCB MOTHER BOARD,TM
1636
K1 FEL
K2 FER
FEMONO
14A
AUDIO
C
Y 7450
BC858C
Y3371
100K
Y 7451
BC818-40
Y3372
2,2K
Y3373
Y 7452
B
Y 3379
56
Y3393
Y2403
100U/25V
Y2400
100U/16V
Y 3403
10K
Y 3400
Y3405
Y3406
7453
BC848C
2405
470U/16V
7454
6054
PRLL4001
RLS4148
6055
2406
22U/25V
3376
3374
22K
3375
56K
3377
15K
3378
5,6K
6056
3440
3442
6,8K
7455
BC858B
12A
5A1
2440
10U/50V
2442
2444
2,3V
3,7V
41
40
39
DC-SEL
1,2V
5,4V
VOL HP
HP-SEL
NOISE R
AFO MU
2411
2,2U/100V
2413
3391
390
GNDD 2420
10U/50V
5,9V
73
3392
2423
DEC-SEL
TUNER
E1
E3
OUT-SEL
3420
3423
LINE-SEL
2432
74
2435
E2
3434
3435
3,9V
RFC MUTE
M
AUDIO MOD.
1637/5
3438
3,3M
2438
17
4,1V
44
45
46
2530
2533
2535

3370 G5
3371 A7
3372 A6
3373 A7
3374 A7
3375 B7
3376 A8
3377 A8
3378 A8
3379 B5
3380 D4
3381 D4
3382 D5
3383 E5
3384 E4
3385 F4
3386 F4
3387 F5
3388 G4
3389 G5
3390 G4
3391 D6
3392 E6
3393 B5
3400 B6
3403 B6
3405 B7
3406 B7
3408 C5
3410 C5
3417 D4
3419 D5
3420 E6
3423 E6
3425 E3
3428 E4
3430 F3
3432 F4
3434 F6
3435 F6
3438 F7
3440 A8
3442 A8
3450 A13
3453 B13
3459 B14
3460 B14
3462 B14
3471 D21
3472 D21
3473 A19
3474 E19
3475 C17
3477 B18
3479 C18
3480 C18
3482 E22
3483 C18
3485 C19
3487 C19
3492 D19
3494 C19
3495 D20
3497 E18
3499 E18
3500 F18
3503 F18
3505 F18
3509 E20
3510 F19
3512 F20
3514 F20
3517 F21
3519 G20
3525 I4
3528 I4
3540 G10
3544 G10
3549 G10
3552 G10
3555 H10
3558 H11
3560 I10
3563 I10
3565 J10
3569 J10
3572 H13
3576 G13
3579 H13
3586 H14
3590 H14
3592 J13
3595 J14
3598 J13
3603 G14
3604 G15
3605 H15
3610 H16
3615 I16
3625 G16
3627 F17
3629 G17
3630 G17
3633 I13
3635 I13
3640 H13
3643 H13
3645 H17
3648 J17
3650 H18
3655 I18
3658 J18
3660 I19
3665 I20
3668 I19
3670 I20
3674 I20
3675 J20
5470 B17
5620 G15
6054 A8
6055 A8
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7402 D21
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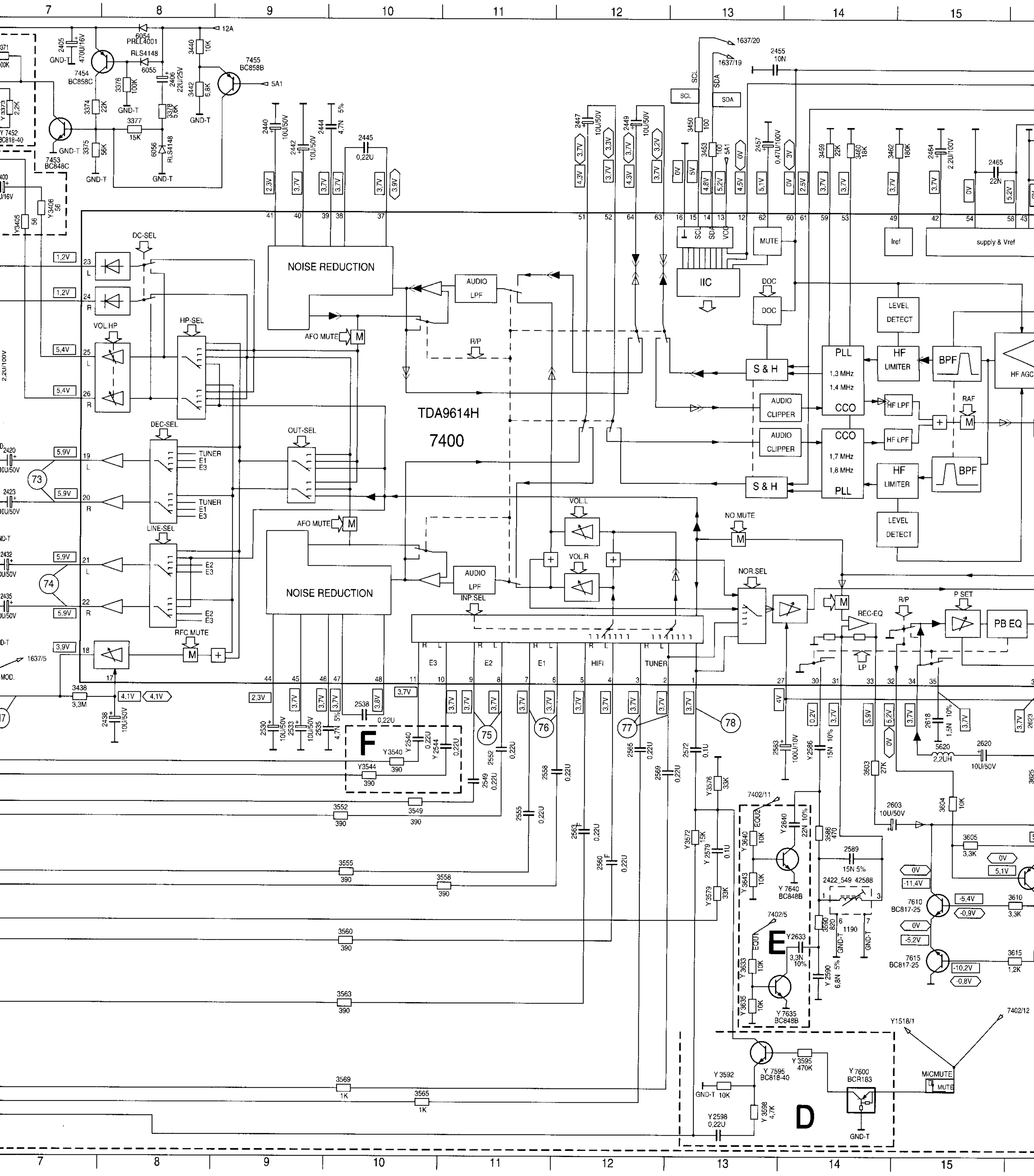
7453 B7
7454 A7
7455 A9


7
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13
14
15
TDA9614H
7400
NOISE REDUCTION
NOISE REDUCTION
AUDIO LPF
AUDIO LPF
AFO MUTE
R/P
DC-SEL
HP-SEL
VOL.HP
DEC-SEL
OUT-SEL
LINE-SEL
RFC MUTE
TUNER
E1
E3
E2
INP.SEL
HIFI
VOL.L
VOL.R
NOR.SEL
NO MUTE
IIC
SCL
SDA
MUTE
DOC
S & H
PLL
CCO
1,3 MHz
1,4 MHz
1,7 MHz
1,8 MHz
AUDIO CLIPPER
HF LIMITER
HF LPF
BPF
LEVEL DETECT
HF AGC
RAF
Iref
supply & Vref
REC-EQ
P SET
PB EQ
LP
12A
5A1
7454 BC858C
7455 BC858B
7453 BC848C
7452 BC818-40
6054 PRLL4001
6055 RLS4148
6056 RLS4148
1637/20
1637/19
1637/5
7402/11
7402/5
7402/12
Y 7640 BC848B
Y 7635 BC848B
7610 BC817-25
7615 BC817-25
Y 7595 BC618-40
Y 7600 BCR183
Y1518/1
MICMUTE
MUTE
GND-T
73
74
75
76
77
78
F
E
D

3590	H14
3592	J13
3595	J14
3598	J13
3603	G14
3604	G15
3605	H15
3610	H16
3615	I16
3625	G16
3627	F17
3629	G17
3630	G17
3633	I13
3635	I13
3640	H13
3643	H13
3645	H17
3648	J17
3650	H18
3655	I18
3658	J18
3660	I19
3665	I20
3668	I19
3670	I20
3674	I20
3675	J20
5470	B17
5620	G15
6054	A8
6055	A8
6056	B8
6605	H16
7400	D11
7402	D21
7450	A6
7451	A6
7452	B7
7453	B7
7454	A7
7455	A9
7460	D3
7461	D4
7462	E3
7463	E4
7464	E4
7465	F4
7466	G4
7467	G3
7468	G5
7485	C18
7495	D19
7500	E19
7505	F18
7510	E19
7515	F20
7595	J14
7600	J14
7605	H16
7610	H15
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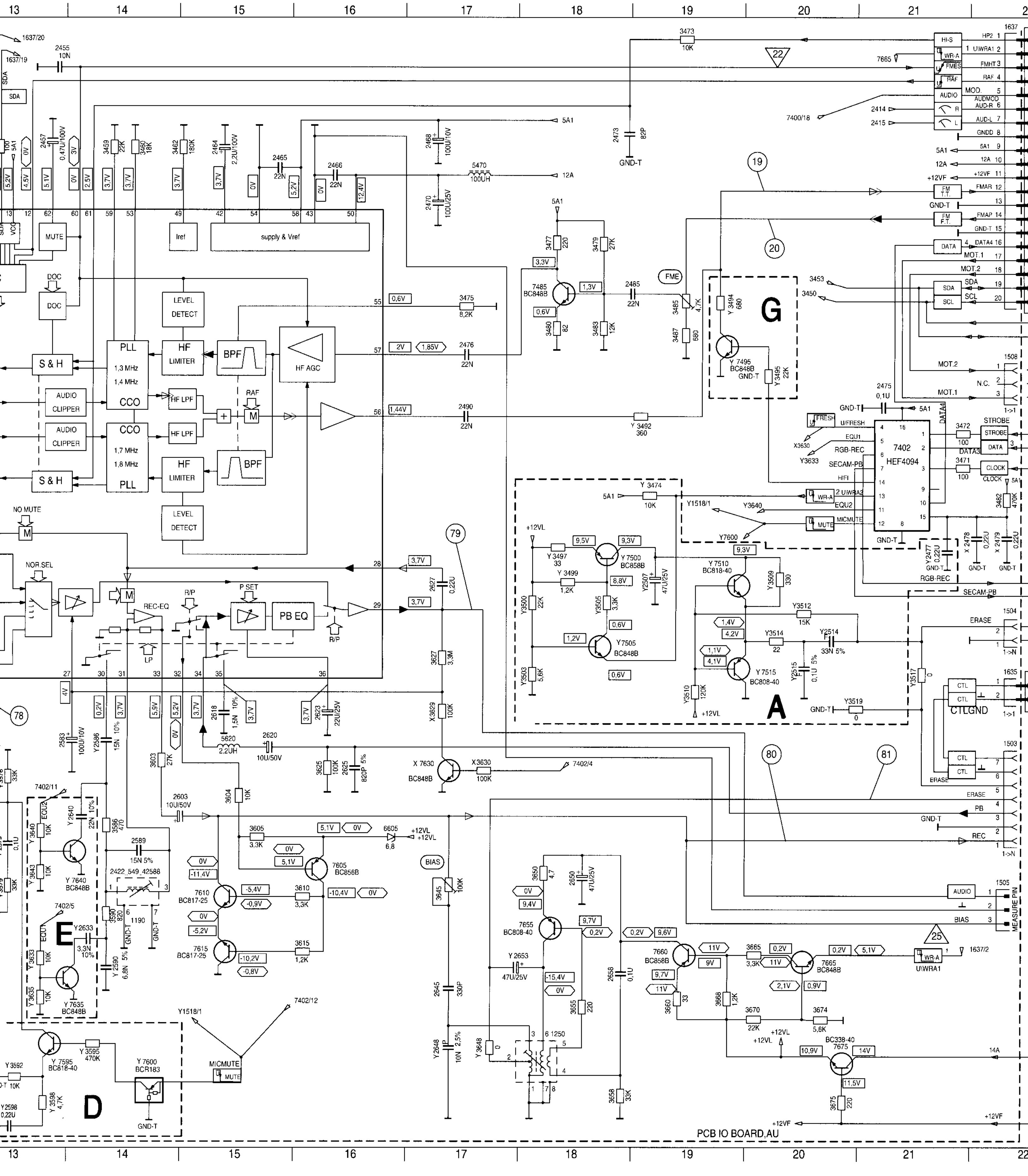
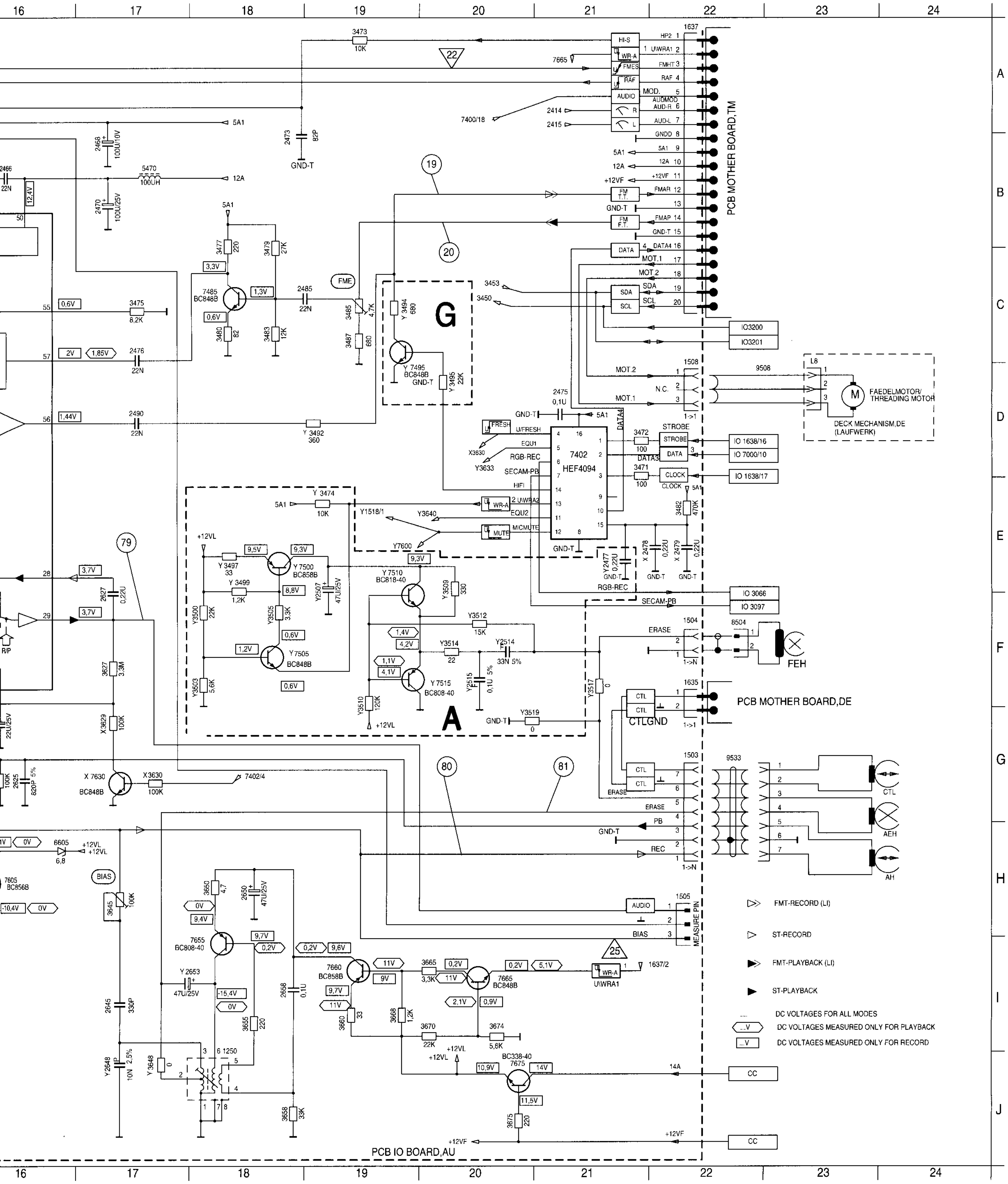
7655	I18
7660	I19
7665	I20
7675	J20


13
14
15
16
17
18
19
20
21
1637/20
1637/19
2455
10N
SDA
MUTE
DOC
S & H
PLL
1,3 MHz
1,4 MHz
CCO
1,7 MHz
1,8 MHz
AUDIO CLIPPER
LEVEL DETECT
HF LIMITER
HF LPF
BPF
RAF
M
HF AGC
Iref
supply & Vref
5A1
12A
5470
100UH
2473
82P
GND-T
3473
10K
22
7665
HI-S
WR-A
FMES
RAF
AUDIO
MOD.
AUDMOD
AUD-R
AUD-L
GNDD
12A
+12VF
FMAR
FMAP
DATA4
MOT.1
MOT.2
SDA
SCL
1637
1508
N.C.
7400/18
2414
2415
19
20
FME
G
7485
BC848B
7495
BC848B
3453
3450
7402
HEF4094
STROBE
DATA
CLOCK
U/FRESH
EQU1
RGB-REC
SECAM-PB
HIFI
EQU2
MICMUTE
X3630
Y3633
Y1518/1
Y3640
Y7600
A
Y 7500
BC858B
Y 7505
BC848B
Y 7510
BC818-40
Y 7515
BC808-40
+12VL
1504
ERASE
1635
CTL
CTLGND
1503
PB
REC
1505
MEASURE PIN
BIAS
NO MUTE
NOR.SEL
REC-EQ
R/P
P SET
PB EQ
LP
79
78
80
81
E
7402/11
7402/5
Y 7640
BC848B
Y 7635
BC848B
2422_549_42588
1190
X 7630
BC848B
X3630
7402/4
7605
BC856B
7610
BC817-25
7615
BC817-25
6605
6,8
7655
BC808-40
6 1250
7660
BC858B
7665
BC848B
BC338-40
7675
25
U\WRA1
1637/2
14A
Y1518/1
7402/12
MICMUTE
MUTE
Y 7595
BC818-40
Y 7600
BCR183
D
PCB IO BOARD,AU

7460	D3
7461	D4
7462	E3
7463	E4
7464	E4
7465	F4
7466	G4
7467	G3
7468	G5
7485	C18
7495	D19
7500	E19
7505	F18
7510	E19
7515	F20
7595	J14
7600	J14
7605	H16
7610	H15
7615	I15
7630	G17
7635	I14
7640	H14
7655	I18
7660	I19
7665	I20
7675	J20


16
17
18
19
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21
22
23
24
A
B
C
D
E
F
G
H
I
J
1637
HI-S
WR-A
FMES
RAF
AUDIO
R
L
HP2 1
U\WRA1 2
FMHT 3
RAF 4
MOD. 5
AUDMOD AUD-R 6
AUD-L 7
GNDD 8
5A1 9
12A 10
+12VF 11
FMAR 12
13
FMAP 14
GND-T 15
DATA4 16
MOT.1 17
MOT.2 18
SDA 19
SCL 20
PCB MOTHER BOARD,TM
3473 10K
22
7665
7400/18
2414
2415
5A1
12A
+12VF
GND-T
FM T.T.
FM F.T.
DATA
SDA
SCL
3453
3450
IO3200
IO3201
2468 100U/10V
2473 82P
GND-T
2466 22N
5470 100UH
2470 100U/25V
12,4V
50
19
20
5A1
3477 220
3479 27K
3,3V
7485 BC848B
1,3V
2485 22N
FME
3485 4,7K
3487 680
3494 680
G
7495 BC848B
GND-T
3495 22K
55
0,6V
3475 8,2K
0,6V
3480 82
3483 12K
57
2V
1,85V
2476 22N
56
1,44V
2490 22N
3492 360
1508
MOT.2
MOT.1
N.C.
9508
L8
M
FAEDELMOTOR/ THREADING MOTOR
DECK MECHANISM,DE (LAUFWERK)
1->1
2475 0,1U
GND-T
5A1
DATA4
FRESH
U/FRESH
EQU1
RGB-REC
SECAM-PB
HIFI
X3630
Y3633
7402 HEF4094
16
4 5 6 7 14 13 11 12 8
1 2 3 9 10 15
3472 100
3471 100
STROBE
DATA
DATA3
CLOCK
IO 1638/16
IO 7000/10
IO 1638/17
5A1
3482 470K
3474 10K
5A1
Y1518/1
Y3640
Y7600
WR-A
MUTE
2 U\WRA2
EQU2
MICMUTE
GND-T
2478 0,22U
2479 0,22U
2477 0,22U
GND-T
RGB-REC
SECAM-PB
IO 3066
IO 3097
79
+12VL
3497 33
9,5V
9,3V
7500 BC858B
9,3V
3499 1,2K
8,8V
2507 47U/25V
7510 BC818-40
3509 330
3500 22K
3505 3,3K
0,6V
1,2V
7505 BC848B
3503 5,6K
0,6V
3512 15K
1,4V
4,2V
3514 22
2514 33N 5%
1,1V
4,1V
7515 BC808-40
2515 0,1U 5%
3510 120K
+12VL
A
GND-T
3519 0
3517 0
1504
ERASE
8504
FEH
1->N
1635
CTL
CTLGND
PCB MOTHER BOARD,DE
1->1
1503
9533
CTL
ERASE
PB
REC
GND-T
1->N
CTL
AEH
AH
28
3,7V
2627 0,22U
29
3,7V
R/P
3627 3,3M
22U/25V
3629 100K
80
81
100K
2625 820P 5%
7630 BC848B
3630 100K
7402/4
0V
6605 6,8
+12VL
BIAS
7605 BC856B
-10,4V
0V
3645 100K
3650 4,7
2650 47U/25V
0V
9,4V
7655 BC808-40
9,7V
0,2V
0,2V
9,6V
25
2653 47U/25V
-15,4V
0V
2645 330P
3655 220
2658 0,1U
7660 BC858B
11V
9V
9,7V
11V
3660 33
3668 1,2K
3665 3,3K
0,2V
11V
7665 BC848B
0,2V
5,1V
WR-A
U\WRA1
1637/2
2,1V
0,9V
3670 22K
3674 5,6K
+12VL
BC338-40 7675
10,9V
14V
11,5V
14A
CC
3675 220
+12VF
CC
2648 10N 2,5%
3648 0
1250
3658 33K
1505
AUDIO
BIAS
MEASURE PIN
PCB IO BOARD,AU

▷▷ FMT-RECORD (LI)

▷ ST-RECORD

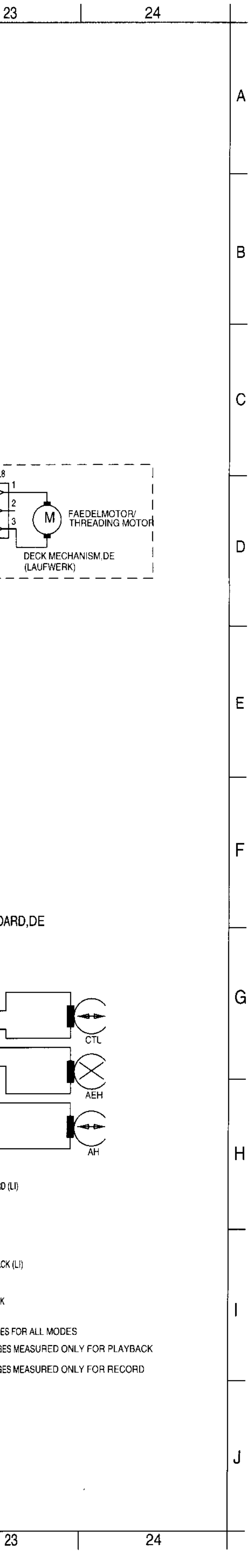
▶▶ FMT-PLAYBACK (LI)

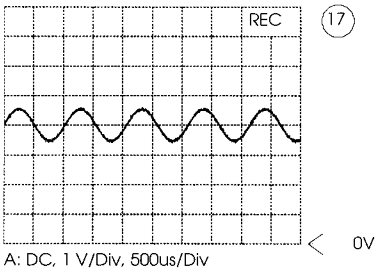
▶ ST-PLAYBACK

.... DC VOLTAGES FOR ALL MODES

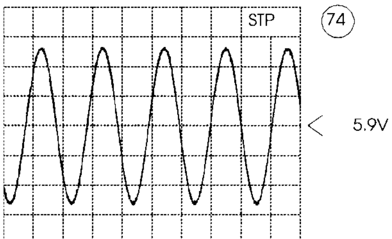
⟨...V⟩ DC VOLTAGES MEASURED ONLY FOR PLAYBACK

[...V] DC VOLTAGES MEASURED ONLY FOR RECORD

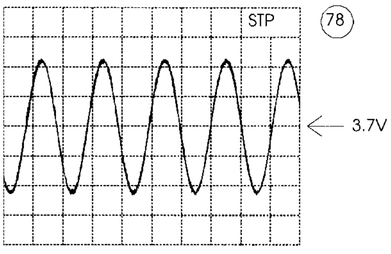

23
24
A
B
C
D
E
F
G
H
I
J
M
FAEDELMOTOR/
THREADING MOTOR
DECK MECHANISM,DE
(LAUFWERK)
OARD,DE
CTL
AEH
AH
D (LI)
CK (LI)
K
ES FOR ALL MODES
GES MEASURED ONLY FOR PLAYBACK
GES MEASURED ONLY FOR RECORD
23
24



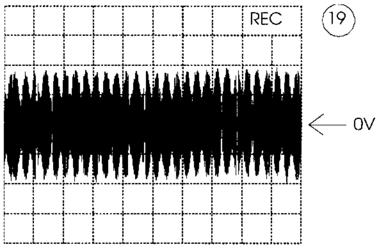
A: DC, 1 V/Div, 500us/Div
Connector 1637 Pin 5



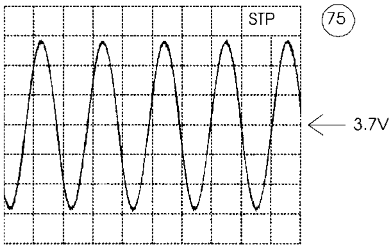
A: AC, 200mV/Div, 500us/Div
IC 7400 Pin 21/22



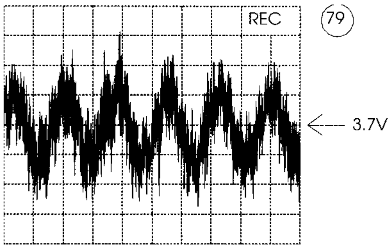
A: AC, 200mV/Div, 500us/Div
IC 7400 Pin 1



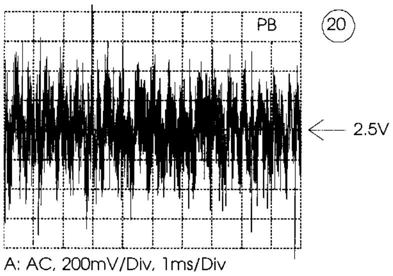
A: DC, 100mV/Div, 1ms/Div
Connector 1637 Pin 12



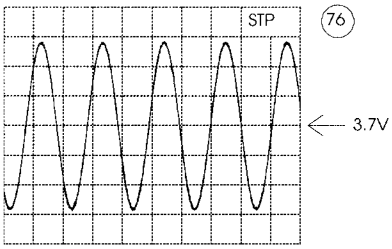
A: AC, 200mV/Div, 500us/Div
IC 7400 Pin 8/9



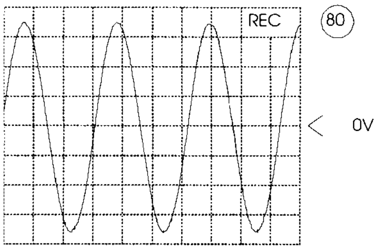
A: AC, 200mV/Div, 100us/Div
IC 7400 Pin 29



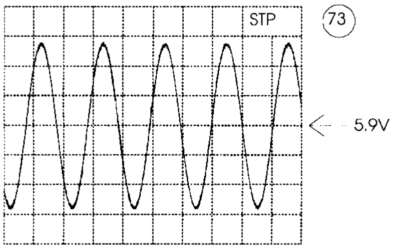
A: AC, 200mV/Div, 1ms/Div
Connector 1637 Pin 14



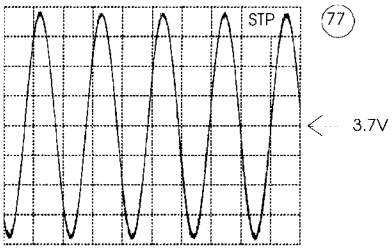
A: AC, 200mV/Div, 500us/Div
IC 7400 Pin 6/7



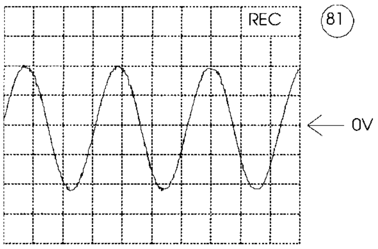
A: DC, 5 V/Div, 5us/Div
Connector 1503 Pin 1



A: AC, 200mV/Div, 500us/Div
IC 7400 Pin 19/20



A: AC, 200mV/Div, 500us/Div
IC 7400 Pin 2/3



A: DC, 5 V/Div, 5us/Div
Connnector 1503 Pin 4

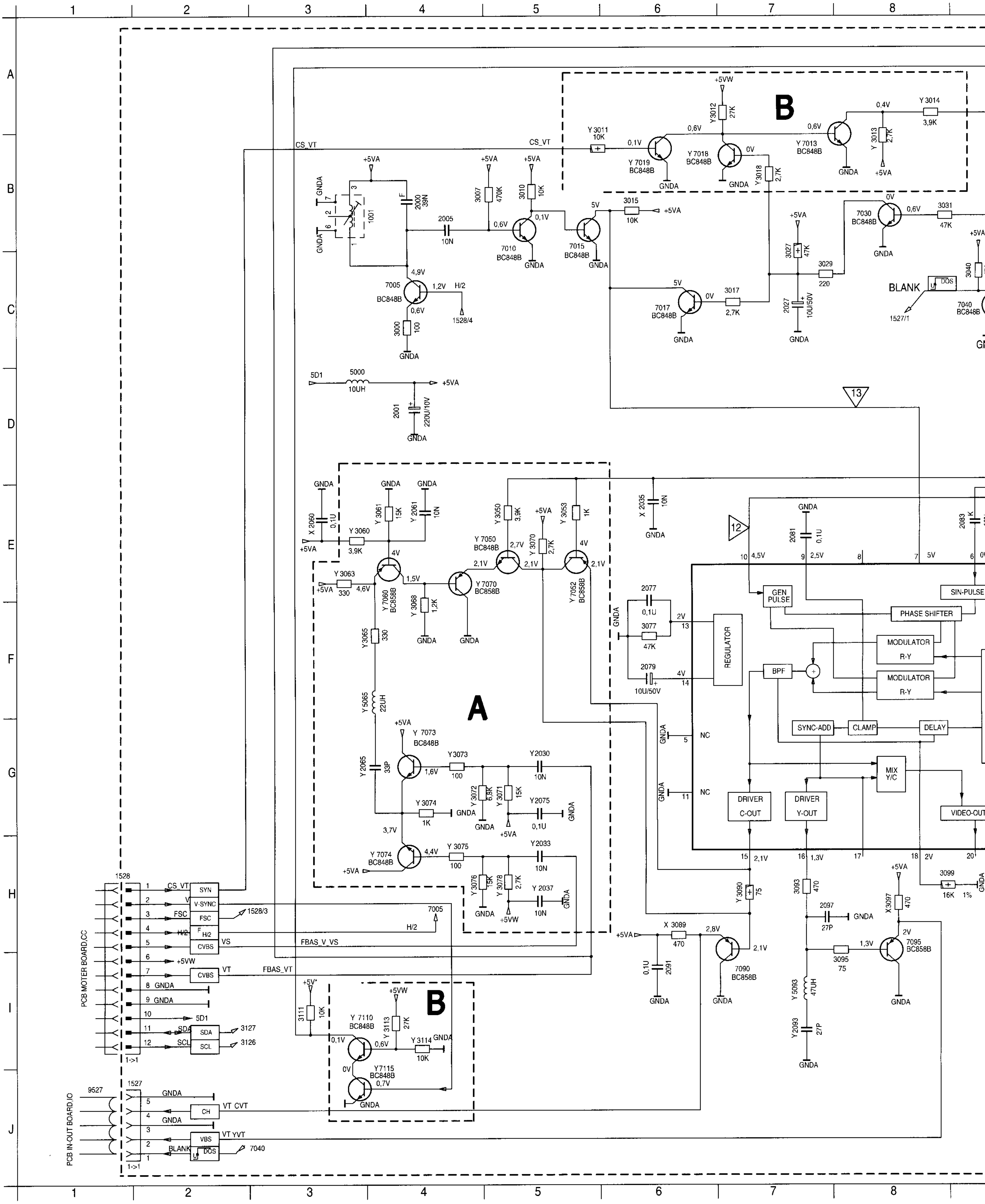
	For sets with
A Y2653	DUBBING
Y2648	with DUB = 5,6n without DUB =10n
B C	Head phone
D Y2579 Y3579	MIC
E	S-VHS
F	with Front input (E3)
G	S-VHS
Y3492	VHS = 560 S-VHS = 360
Y3517 Y3648	without DUB
Y3572 Y3576	without MIC
Y2586	VHS = 22n S-VHS = 15n
Y2590	VHS = 10n S-VHS = 6,8n
Y1518	Headph./MIC = 7pin Headph/MIC/E3 = 11pin
Y1519	Front input (E3)

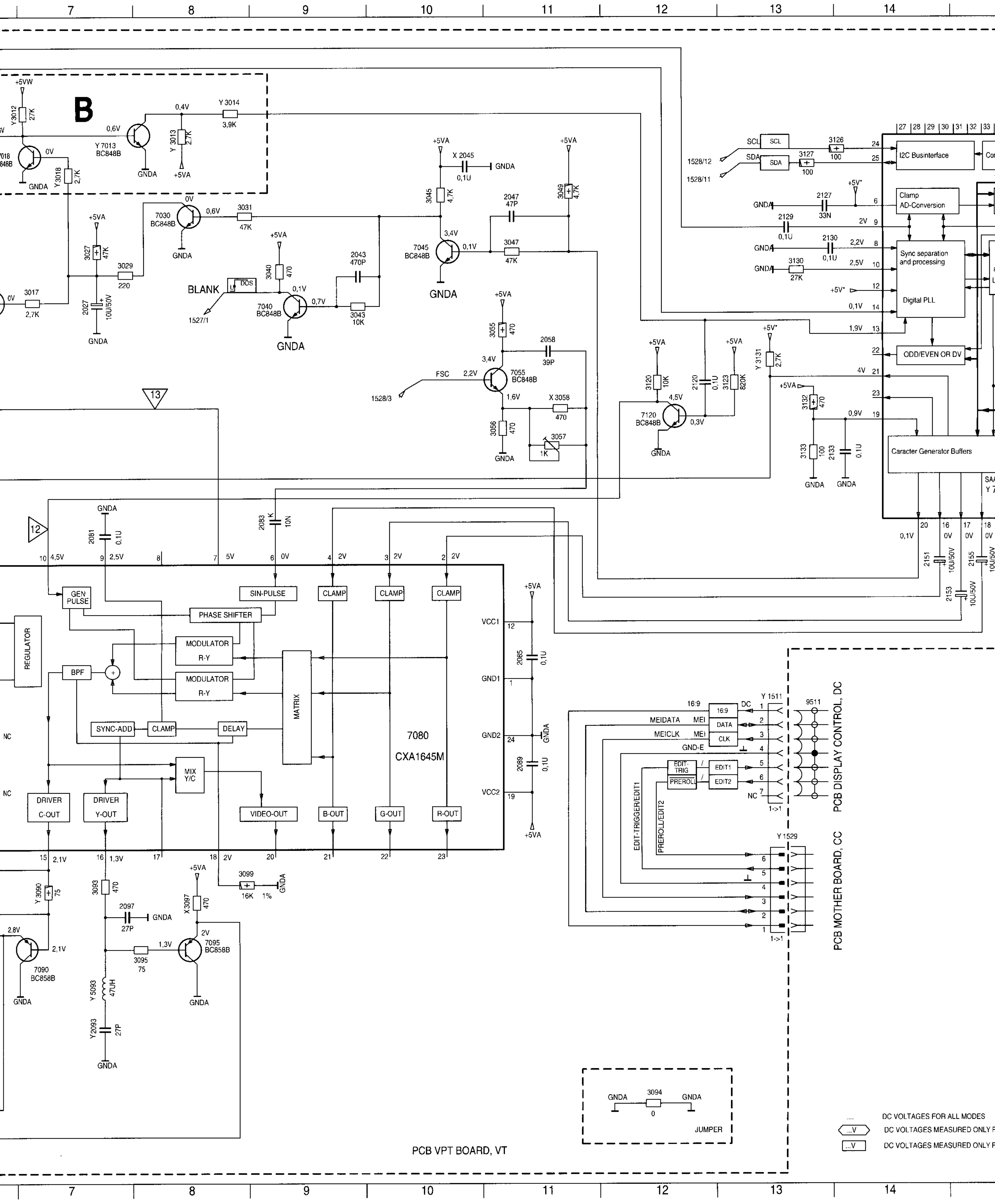
Interconnections:

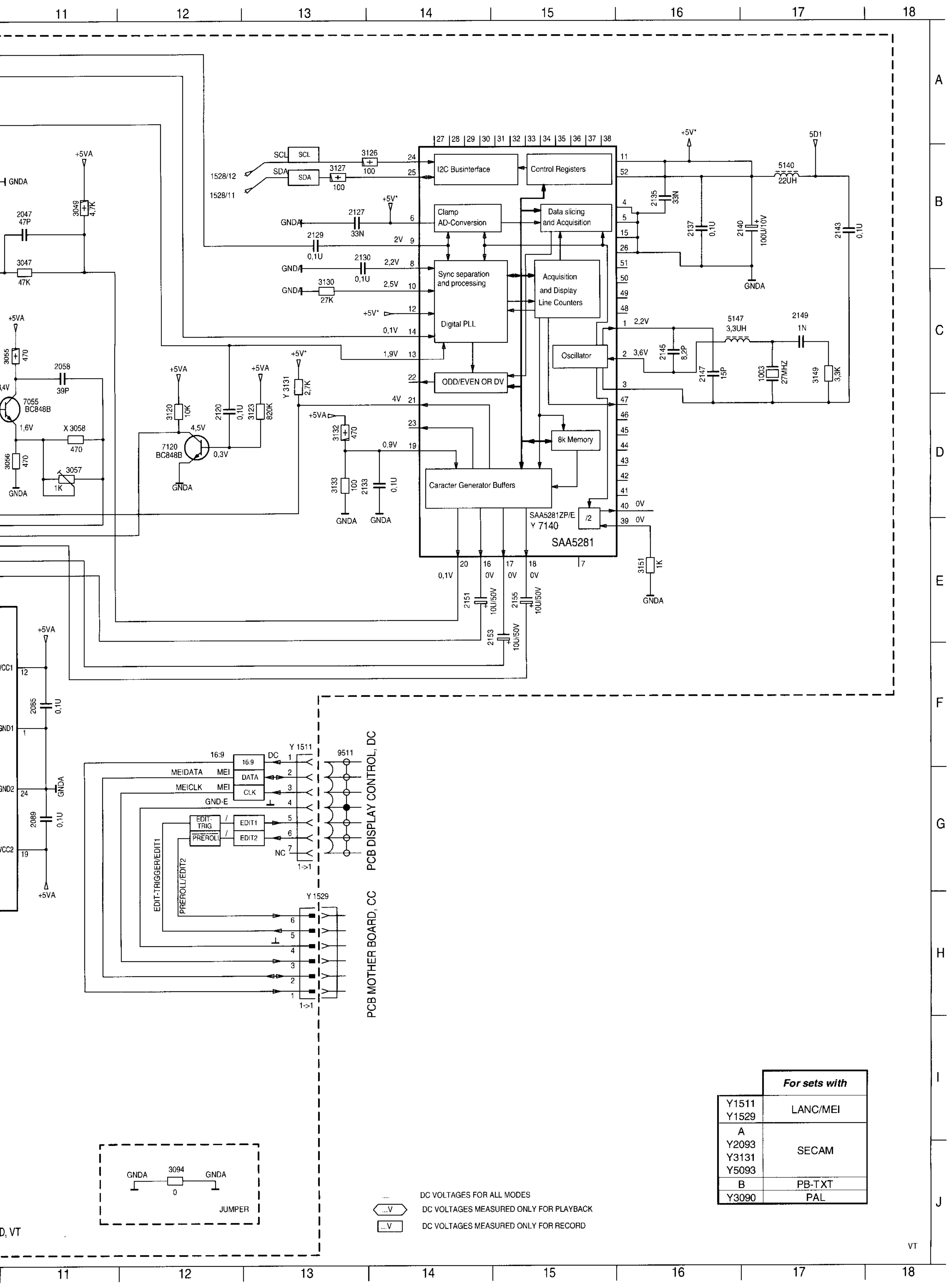
PS page 3-27	SE page 3-35	DE page 3-38	VP page 3-41	VT page 3-46	SF page 3-53
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP page 3-54
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC page 3-57...

Note on the components: "X" components are not used "Y" components are optional

VPT Board (VT)




7
8
9
10
11
12
13
14
B
+5VW
Y 3012
27K
7018
BC848B
0V
GNDA
Y 3018
2,7K
0,6V
Y 7013
BC848B
0,4V
Y 3014
3,9K
Y 3013
2,7K
+5VA
7030
BC848B
0V
0,6V
3031
47K
3027
47K
3029
220
2027
10U/50V
3017
2,7K
BLANK
DOS
1527/1
3040
470
7040
BC848B
0,1V
0,7V
2043
470P
3043
10K
7045
BC848B
3,4V
0,1V
3045
4,7K
X 2045
0,1U
2047
47P
3047
47K
3049
4,7K
FSC
1528/3
7055
BC848B
2,2V
3,4V
1,6V
3055
470
2058
39P
X 3058
470
3057
1K
3056
470
7120
BC848B
4,5V
0,3V
3120
10K
2120
0,1U
3123
820K
Y 3131
2,7K
+5V*
SCL
SDA
1528/12
1528/11
3126
100
3127
100
I2C Businterface
2127
33N
2129
0,1U
2130
0,1U
3130
27K
Clamp
AD-Conversion
Sync separation
and processing
Digital PLL
ODD/EVEN OR DV
3132
470
3133
100
2133
0,1U
Caracter Generator Buffers
SAA
Y 7
2151
10U/50V
2153
10U/50V
2155
10U/50V
13
12
2081
0,1U
2083
10N
10 4,5V
9 2,5V
8
7 5V
6 0V
4 2V
3 2V
2 2V
GEN PULSE
SIN-PULSE
CLAMP
PHASE SHIFTER
MODULATOR R-Y
BPF
MATRIX
SYNC-ADD
DELAY
MIX Y/C
DRIVER C-OUT
DRIVER Y-OUT
VIDEO-OUT
B-OUT
G-OUT
R-OUT
REGULATOR
NC
7080
CXA1645M
VCC1 12
GND1 1
GND2 24
VCC2 19
2085
0,1U
2089
0,1U
15 2,1V
16 1,3V
17
18 2V
20
21
22
23
3099
16K 1%
Y 3090
75
2,8V
2,1V
7090
BC858B
3093
470
2097
27P
3095
75
1,3V
X3097
470
7095
BC858B
Y 5093
47UH
Y2093
27P
Y 1511
9511
16:9
MEIDATA MEI DATA
MEICLK MEI CLK
GND-E
EDIT-TRIG EDIT1
PREROLL EDIT2
NC
1->1
EDIT-TRIGGER/EDIT1
PREROLL/EDIT2
Y 1529
PCB DISPLAY CONTROL, DC
PCB MOTHER BOARD, CC
3094
0
JUMPER
PCB VPT BOARD, VT
DC VOLTAGES FOR ALL MODES
DC VOLTAGES MEASURED ONLY F
DC VOLTAGES MEASURED ONLY F


11
12
13
14
15
16
17
18
A
B
C
D
E
F
G
H
I
J
SAA5281
SAA5281ZP/E
Y 7140
I2C Businterface
Control Registers
Clamp
AD-Conversion
Data slicing
and Acquisition
Sync separation
and processing
Digital PLL
Acquisition
and Display
Line Counters
Oscillator
ODD/EVEN OR DV
8k Memory
Caracter Generator Buffers
/2
SCL
SDA
1528/12
1528/11
3126
100
3127
100
2127
33N
2129
0,1U
2130
0,1U
3130
27K
+5V*
+5VA
GNDA
5140
22UH
5D1
2135
33N
2137
0,1U
2140
100U/10V
2143
0,1U
5147
3,3UH
2149
1N
2145
8,2P
2147
15P
1003
27MHZ
3149
3,3K
3151
1K
2151
10U/50V
2153
10U/50V
2155
10U/50V
3131
2,7K
3132
470
3133
100
2133
0,1U
7120
BC848B
3120
10K
2120
0,1U
3123
820K
7055
BC848B
3055
470
2058
39P
3058
470
3056
470
3057
1K
2047
47P
3047
47K
3049
4,7K
2085
0,1U
2089
0,1U
VCC1
GND1
GND2
VCC2
Y 1511
9511
16:9
DATA
CLK
MEIDATA
MEICLK
MEI
DC
GND-E
EDIT-TRIG
PREROLL
EDIT1
EDIT2
NC
1->1
PCB DISPLAY CONTROL, DC
Y 1529
PCB MOTHER BOARD, CC
EDIT-TRIGGER/EDIT1
PREROLL/EDIT2
3094
0
JUMPER
D, VT
VT

For sets with	
Y1511 Y1529	LANC/MEI
A Y2093 Y3131 Y5093	SECAM
B	PB-TXT
Y3090	PAL

... DC VOLTAGES FOR ALL MODES

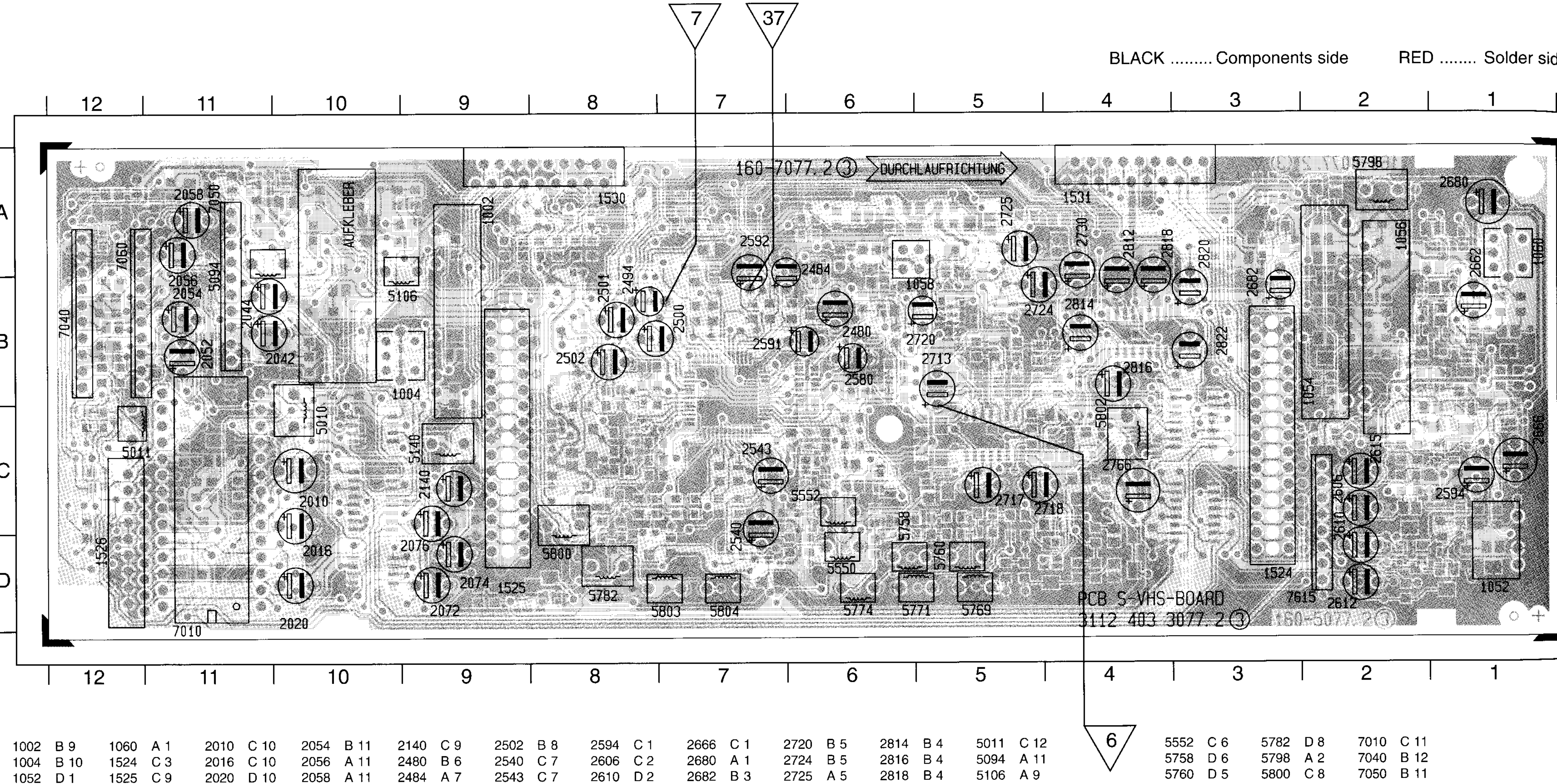
⟨...V⟩ DC VOLTAGES MEASURED ONLY FOR PLAYBACK

[...V] DC VOLTAGES MEASURED ONLY FOR RECORD

1001	B4
1003	C17
1511	F13
1527	J2
1528	H1
1529	H13
2000	B4
2001	D4
2005	B4
2027	C7
2030	G5
2033	H5
2035	E6
2037	H5
2043	C9
2045	B10
2047	B11
2058	C11
2060	E3
2061	E4
2065	G3
2075	G5
2077	E6
2079	F6
2081	E7
2083	E9
2085	F11
2089	G11
2091	I6
2093	I7
2097	H7
2120	D12
2127	B13
2129	B13
2130	B13
2133	D14
2135	B16
2137	B16
2140	B16
2143	B17
2145	C16
2147	C16
2149	C17
2151	E14
2153	E14
2155	E15
3000	C4
3007	B4
3010	B5
3011	A6
3012	A6
3013	B8
3014	A8
3015	B6
3017	C7
3018	B7
3027	C7
3029	C7
3031	B8
3040	C9
3043	C9
3045	B10
3047	B11
3049	B11
3050	E5
3053	E5
3055	C11
3056	D11
3057	D11
3058	D11
3060	E3
3061	E4
3063	E3
3065	F3
3068	F4
3070	E5
3071	G5
3072	G4
3073	G4
3074	G4
3075	H4
3076	H4
3077	F6
3078	H5
3089	H6
3090	H7
3093	H7
3094	J12
3095	I8
3097	H8
3099	H8
3111	I3
3113	I4
3114	I4
3120	D12
3123	D13
3126	B14
3127	B13
3130	C13
3131	C13
3132	D13
3133	D13
3149	C17
3151	E16
5000	D3
5065	F3
5093	I7
5140	B17
5147	C16
7005	C4
7010	B5
7013	B7
7015	B5
7017	C6
7018	B6
7019	B6
7030	B8
7040	C9
7045	B10
7050	E5
7052	E5
7055	D11
7060	E4
7070	E5
7073	G4
7074	H4
7080	G10
7090	I7
7095	H8
7110	I4
7115	J4
7120	D12
7140	E15

e

BLACK .... Components side RED .... Solder sid


7
37
6
12
11
10
9
8
7
6
5
4
3
2
1
A
B
C
D
160-7077.2 ③
DURCHLAUFRICHTUNG
AUFKLEBER
PCB S-VHS-BOARD
3112 403 3077.2 ③
1002
1004
1052
1054
1056
1058
1060
1524
1525
1526
1530
1531
2010
2016
2020
2042
2044
2052
2054
2056
2058
2072
2074
2076
2140
2480
2484
2494
2500
2502
2504
2540
2543
2580
2591
2592
2594
2606
2610
2612
2615
2662
2666
2680
2682
2713
2717
2718
2720
2724
2725
2730
2766
2812
2814
2816
2818
2820
2822
5010
5011
5094
5106
5140
5550
5552
5758
5760
5769
5771
5774
5782
5798
5800
5802
5803
5804
7010
7040
7050
7060
7615

1002	B 9
1004	B 10
1052	D 1
1054	B 2
1056	B 2
1058	A 5
1060	A 1
1524	C 3
1525	C 9
1526	D 12
1530	A 8
1531	A 4
2010	C 10
2016	C 10
2020	D 10
2042	B 11
2044	B 11
2052	B 11
2054	B 11
2056	A 11
2058	A 11
2072	D 9
2074	D 9
2076	C 9
2140	C 9
2480	B 6
2484	A 7
2494	B 8
2500	B 8
2501	B 8
2502	B 8
2540	C 7
2543	C 7
2580	B 6
2591	B 6
2592	A 7
2594	C 1
2606	C 2
2610	D 2
2612	D 2
2615	C 2
2662	B 1
2666	C 1
2680	A 1
2682	B 3
2713	B 5
2717	C 5
2718	C 5
2720	B 5
2724	B 5
2725	A 5
2730	A 4
2766	C 4
2812	B 4
2814	B 4
2816	B 4
2818	B 4
2820	B 3
2822	B 3
5010	C 10
5011	C 12
5094	A 11
5106	A 9
5140	C 9
5536	D 7
5550	D 6
5552	C 6
5758	D 6
5760	D 5
5769	D 5
5771	D 5
5774	D 6
5782	D 8
5798	A 2
5800	C 8
5802	C 4
5803	D 7
5804	D 7
7010	C 11
7040	B 12
7050	B 11
7060	B 12
7615	C 2

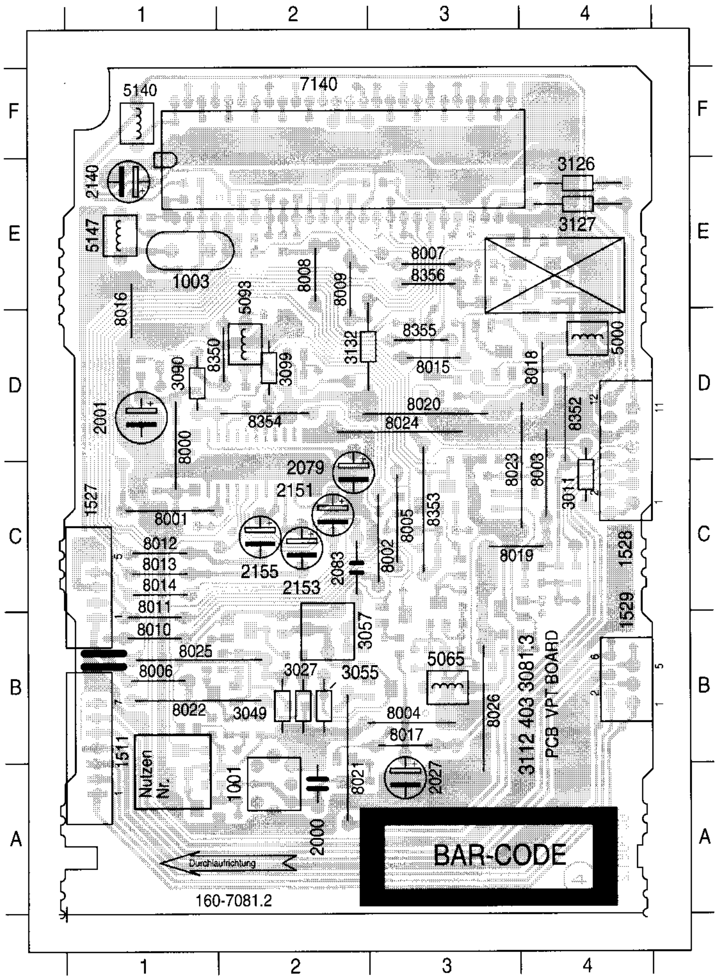
VPT Board

Conventional Assembly

View of components side

SMD As

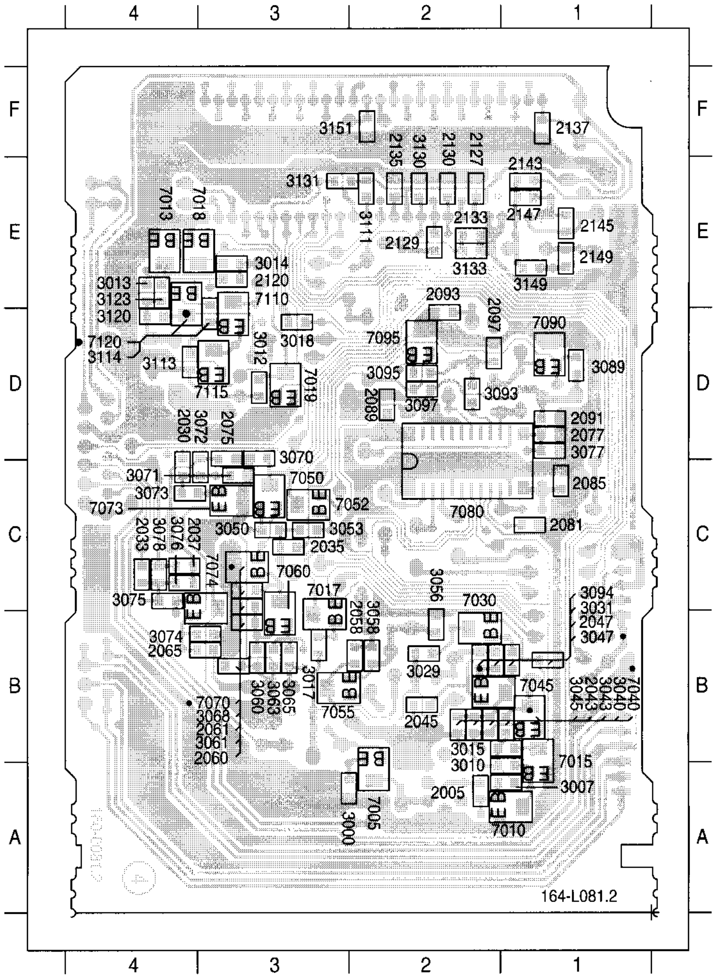
View of s


1
2
3
4
F
E
D
C
B
A
5140
7140
2140
3126
3127
5147
1003
8016
8008
8009
8007
8356
5093
8350
3090
3099
3132
8355
8015
5000
2001
8000
8354
8020
8024
8018
8352
2079
2151
8023
8003
3011
1527
8001
8012
8013
8014
8011
8010
2155
2153
2083
8002
8005
8353
8019
1528
1529
3057
8025
8006
3027
3055
5065
8022
3049
8004
8017
8026
3112 403 3081.3
PCB VPT BOARD
1511
Nutzen Nr.
1001
8021
2027
2000
BAR-CODE
Durchlaufrichtung
160-7081.2

0902	A 3	2151	C 2	5000	D 4	8007	E 3	8020	D 3
1001	A 2	2153	C 2	5065	B 3	8008	E 2	8021	B 2
1003	E 1	2155	C 2	5093	D 2	8009	E 2	8022	B 1
1511	B 1	3011	C 4	5140	F 1	8010	B 1	8023	C 4
1527	C 1	3027	B 2	5147	E 1	8011	B 1	8024	D 3
1528	D 4	3049	B 2	7140	F 2	8012	C 1	8025	B 1
1529	B 4	3055	B 2	8000	D 1	8013	C 1	8026	B 3
2000	A 2	3057	B 2	8001	C 1	8014	C 1	8350	D 2
2001	D 1	3090	D 1	8002	C 3	8015	D 3	8352	D 4
2027	A 3	3099	D 2	8003	C 4	8016	E 1	8353	C 3
2079	C 2	3126	E 4	8004	B 3	8017	B 3	8354	D 2
2083	C 2	3127	E 4	8005	C 3	8018	D 4	8355	D 3
2140	E 1	3132	D 3	8006	B 1	8019	C 4	8356	E 3

SMD Assembly

View of solder side


4
3
2
1
F
E
D
C
B
A
3151
2137
2135
3130
2130
2127
2143
3131
7013
7018
3111
2133
2147
2145
2129
3133
2149
3014
2120
7110
3013
3123
3120
3149
2093
2097
7090
7120
3114
3018
3012
7095
3113
3095
3089
7019
7115
2089
3097
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2030
3072
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2091
2077
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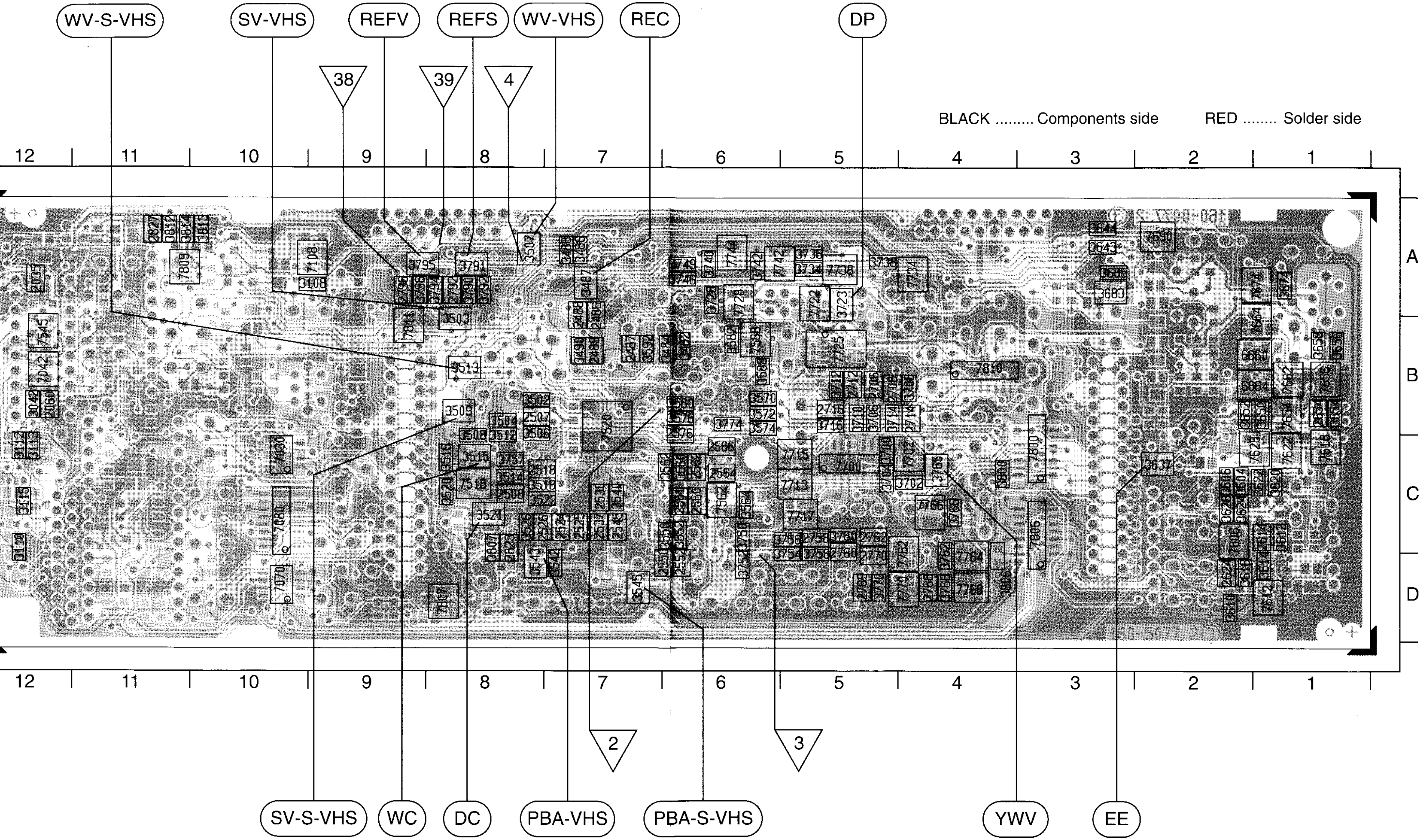
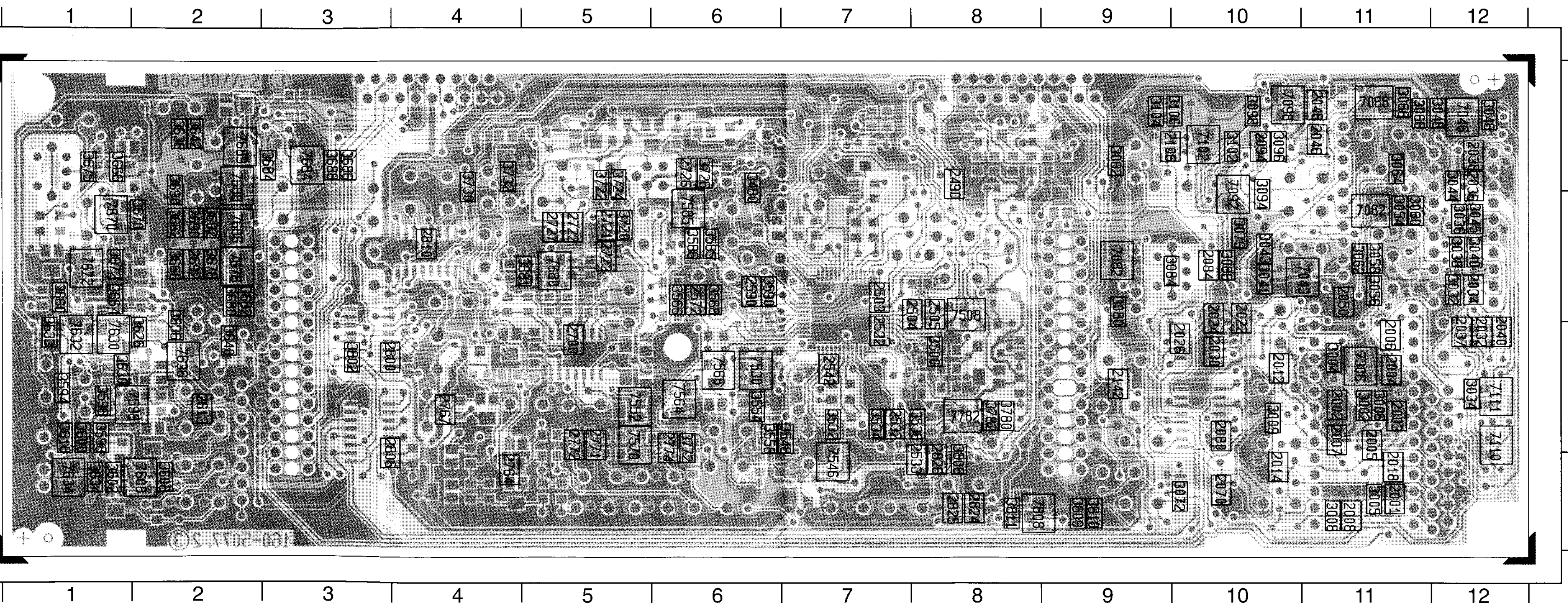
3073
2085
7073
7052
7080
2033
3078
3076
2037
3050
3053
2081
2035
7074
7060
3056
7017
3094
3031
2047
3047
3075
7030
3058
2058
3074
2065
3029
7040
3040
3043
3045
7045
3017
3065
3063
3060
7055
7070
3068
2061
3061
2060
2045
3015
3010
7015
3007
2005
7005
3000
7010
164-L081.2

2005	A 2	2127	E 2	3040	B 1	3078	C 4	7018	E 4
2030	C 4	2129	E 2	3043	B 2	3089	D 1	7019	D 3
2033	C 4	2130	E 2	3045	B 2	3093	D 2	7030	B 2
2035	C 3	2133	E 2	3047	B 2	3094	B 1	7040	B 1
2037	C 4	2135	E 2	3050	C 3	3095	D 2	7045	B 2
2043	B 2	2137	F 1	3053	C 3	3097	D 2	7050	C 3
2045	B 2	2143	E 1	3056	B 2	3111	E 2	7052	C 3
2047	B 2	2145	E 1	3058	B 2	3113	D 4	7055	B 3
2058	B 2	2147	E 1	3060	B 3	3114	D 3	7060	C 3
2060	B 3	2149	E 1	3061	B 3	3120	D 4	7070	C 3
2061	C 3	3000	A 3	3063	B 3	3123	E 4	7073	C 3
2065	B 3	3007	A 1	3065	B 3	3130	E 2	7074	C 3
2075	D 3	3010	B 1	3068	C 3	3131	E 3	7080	D 2
2077	D 1	3012	D 3	3070	D 3	3133	E 2	7090	D 1
2081	C 1	3013	E 4	3071	C 3	3149	E 1	7095	D 2
2085	C 1	3014	E 3	3072	C 4	3151	F 2	7110	D 3
2089	D 2	3015	B 1	3073	C 4	7005	A 2	7115	D 3
2091	D 1	3017	B 3	3074	B 3	7010	A 1	7120	E 4
2093	D 2	3018	D 3	3075	C 4	7013	E 4		
2097	D 2	3029	B 2	3076	C 4	7015	B 1		
2120	E 3	3031	B 1	3077	D 1	7017	C 3		



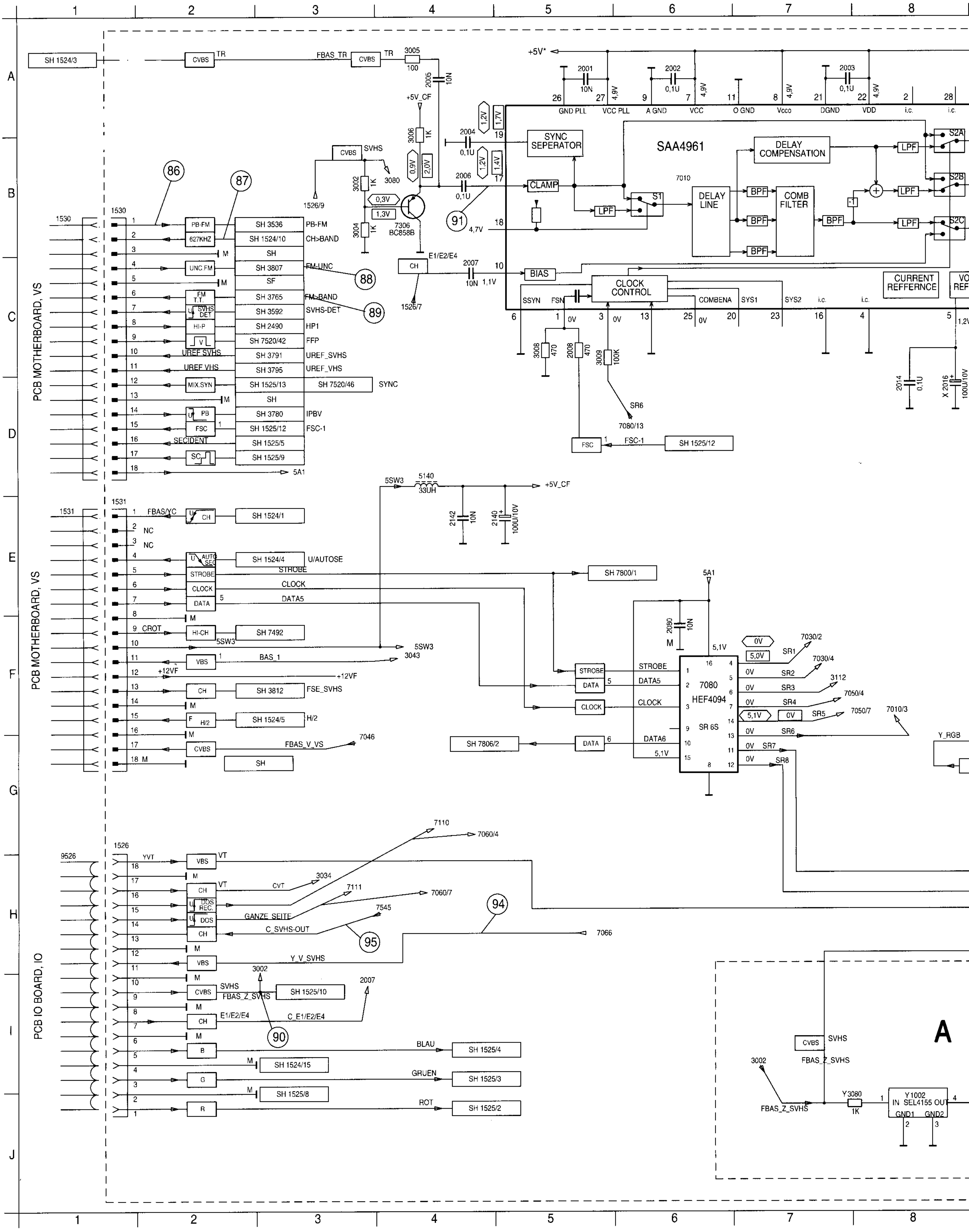
2530	C 7
2537	C 7
2545	C 7
2550	D 6
2552	D 6
2560	C 6
2561	C 6
2562	C 6
2564	C 6
2566	C 6
2568	B 6
2576	B 6
2614	C 1
2624	D 2
2654	B 1
2706	B 5
2708	B 5
2712	B 5
2714	B 4
2716	B 5
2758	C 5
2760	C 5
2762	C 5
2768	D 4
2769	D 5
2770	D 5
2792	A 8
2796	A 9
2823	C 8
2827	A 11
3042	B 12
3108	A 9
3110	C 12
3112	C 12
3113	C 12
3115	C 12
3482	B 6
3483	A 7
3484	B 6
3486	A 7
3487	A 7
3488	A 7
3490	B 7
3494	B 7
3502	B 8
3503	B 8
3504	B 8
3506	B 8
3507	A 8
3508	C 8
3509	B 8
3512	C 8
3513	B 8
3514	C 8
3515	C 8
3516	C 8
3518	C 8
3520	C 8
3521	C 8
3522	C 8
3526	C 8
3528	C 7
3540	C 7
3542	D 7
3543	D 8
3545	D 7
3550	C 6
3552	C 6
3560	C 6
3562	C 6
3564	C 6
3570	B 6
3572	B 6
3574	B 6
3576	B 6
3580	B 6
3582	B 6
3584	B 6
3588	B 6
3592	B 7
3604	C 2
3606	C 2
3610	D 2
3612	C 1
3614	D 1
3616	D 2
3620	C 1
3622	C 1
3624	C 2
3628	C 2
3637	C 2
3643	A 3
3644	A 3
3650	B 1
3652	B 2
3654	B 1
3656	B 1
3658	B 1
3674	A 1
3683	A 3
3685	A 3
3700	C 5
3702	C 4
3704	C 5
3706	B 5
3708	B 4
3710	B 5
3712	B 5
3714	B 5
3716	B 5
3723	A 5
3728	A 6
3734	A 5
3736	A 5
3738	A 5
3740	A 6
3742	A 6
3746	A 6
3749	A 6
3750	C 6
3752	D 6
3754	D 5
3756	C 5
3757	C 8
3758	D 5
3760	C 5
3762	D 4
3765	C 4
3766	C 4
3768	D 4
3770	D 5
3790	A 8
3791	A 8
3792	A 8
3794	A 8
3795	A 9
3796	A 9
3800	C 4
3806	D 4
3807	C 8
3812	A 11
3813	A 10
3814	A 11
6554	D 6
6556	D 6
6660	B 1
6664	B 1
7030	C 10
7042	B 12
7070	D 10
7080	C 10
7108	A 9
7518	C 8
7520	B 7
7545	B 12
7562	C 6
7588	B 6
7606	C 2
7612	D 1
7618	C 1
7622	C 1
7628	C 1
7654	B 1
7656	B 1
7662	B 1
7664	B 1
7674	A 1
7690	A 2
7700	C 5
7702	C 4
7713	C 5
7715	C 5
7717	C 5
7722	A 5
7725	B 5
7728	A 6
7734	A 4
7738	A 5
7742	A 6
7744	A 6
7762	D 4
7764	D 4
7766	C 4
7768	D 4
7770	D 4
7800	C 3
7806	C 3
7807	D 8
7809	A 11
7810	B 4
7811	B 9

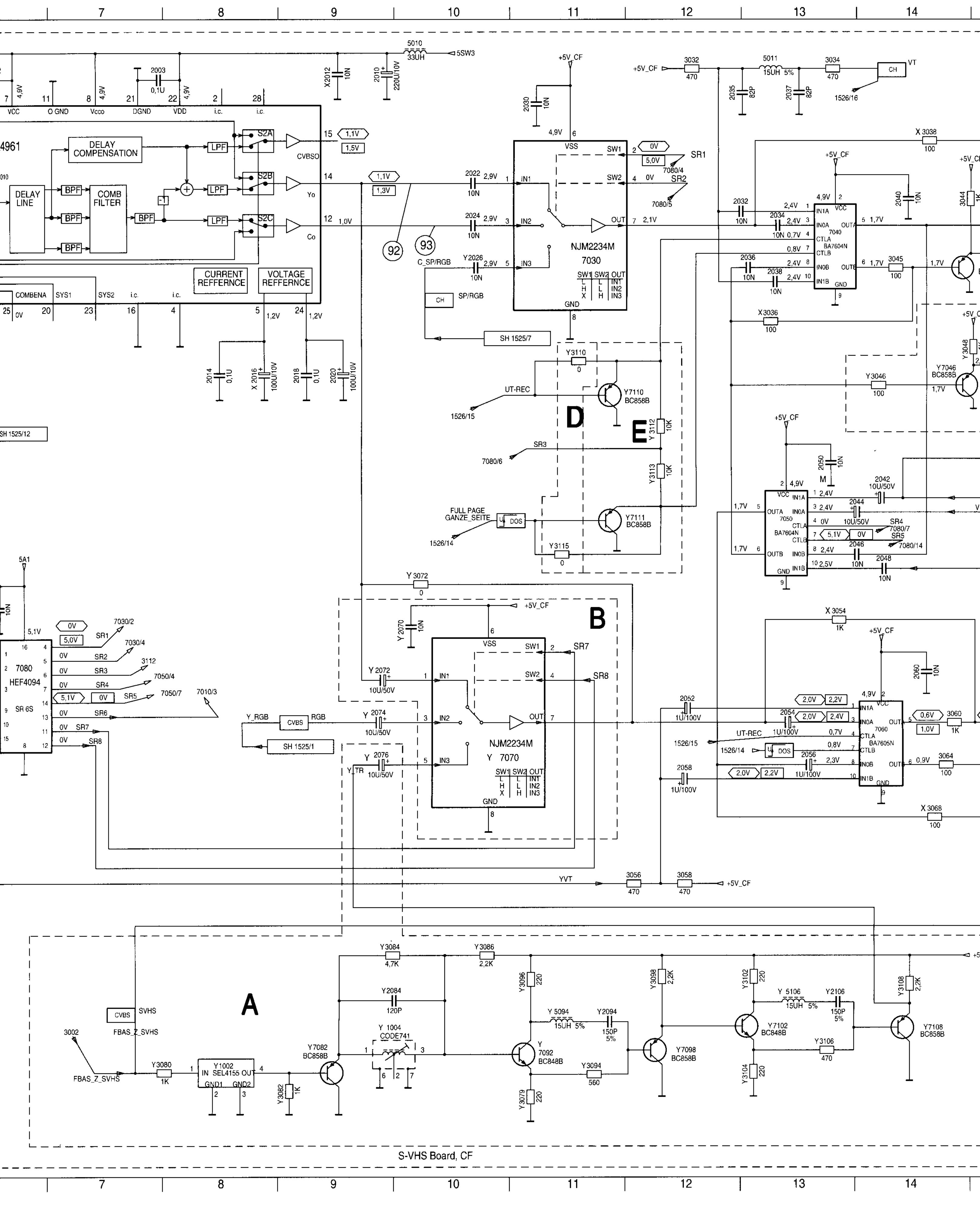
BLACK .... Solder side RED .... Components side



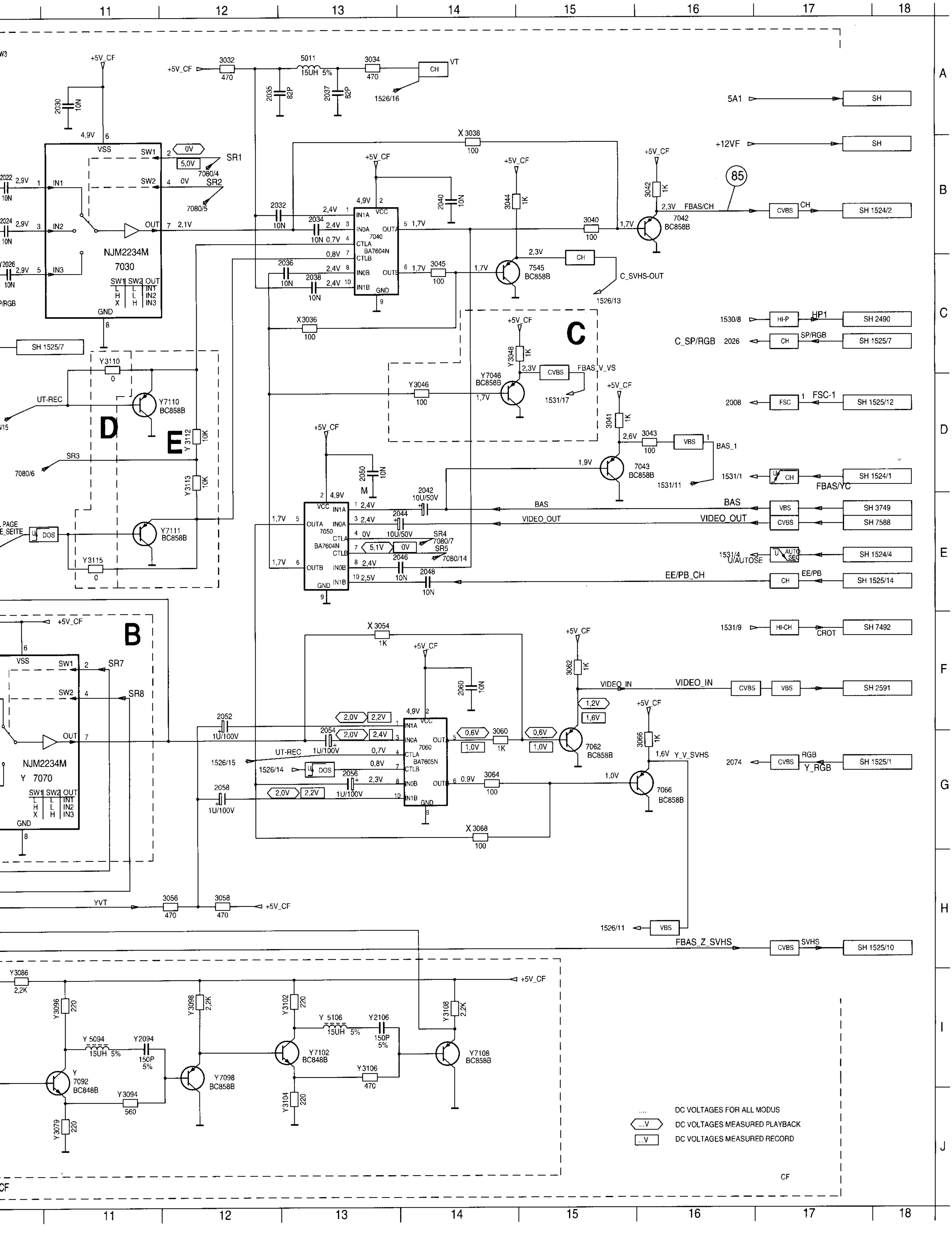
2026	C 10	2080	C 10	2532	C 7	2722	B 5	2824	D 8	3038	B 12	3062	B 11	3098	A 10	3548	C 7	3600	C 1	3660	B 1	3686	A 3	3782	C 8	7098	A 10	7566	C 6	7684	A 3
2030	C 10	2084	B 10	2533	D 8	2723	B 5	2825	D 8	3040	B 12	3064	A 11	3102	A 10	3554	C 6	3602	D 1	3662	B 2	3688	A 3	3802	C 3	7102	A 10	7570	C 5	7686	B 2
2032	C 12	2094	A 10	2536	D 7	2726	A 6	2826	D 8	3041	B 10	3066	A 11	3104	A 9	3556	D 6	3608	D 2	3664	B 1	3690	A 2	3808	D 8	7110	C 12	7585	B 6	7688	A 2
2034	B 12	2106	A 9	2542	C 7	2727	B 5	3002	C 11	3043	B 10	3068	A 11	3106	A 10	3558	C 6	3618	C 1	3666	A 1	3692	B 2	3809	D 9	7111	C 12	7598	C 2	7689	A 2
2036	A 12	2142	C 9	2572	B 6	2764	D 4	3004	C 11	3044	A 12	3072	D 10	3480	A 6	3566	B 6	3626	C 2	3668	B 2	3720	B 5	3810	D 9	7306	C 11	7608	D 2	7782	C 8
2037	C 12	2490	A 8	2586	B 6	2767	C 4	3005	D 11	3045	B 12	3079	B 10	3492	A 8	3568	B 6	3630	C 1	3670	B 2	3722	A 5	3811	D 8	7492	A 8	7630	C 1	7808	D 8
2038	A 12	2496	B 7	2590	B 6	2771	C 5	3006	C 11	3046	A 12	3080	B 9	3496	B 7	3585	B 6	3633	C 1	3672	B 1	3724	A 5	7043	B 11	7498	B 7	7632	C 1		
2040	C 12	2498	B 7	2613	C 2	2772	C 5	3008	D 11	3048	A 12	3082	A 9	3498	B 7	3586	B 6	3634	D 1	3675	A 1	3726	A 6	7046	A 12	7508	B 8	7634	D 1		
2046	A 11	2503	B 7	2690	B 2	2774	C 6	3009	C 10	3054	B 11	3084	B 10	3500	C 8	3590	B 6	3636	C 2	3678	B 2	3730	A 4	7062	B 11	7530	C 6	7636	C 2		
2048	A 11	2504	B 8	2692	B 2	2800	C 3	3032	B 12	3056	B 11	3086	B 10	3532	C 7	3594	C 1	3638	A 2	3680	B 2	3732	A 4	7066	A 11	7546	D 7	7670	B 1		
2050	B 11	2505	B 8	2700	C 5	2806	D 3	3034	C 12	3058	B 11	3094	B 10	3534	C 7	3596	C 1	3640	C 2	3682	B 2	3772	C 6	7082	B 9	7552	C 5	7672	B 1		
2070	D 10	2522	C 7	2721	B 5	2810	B 4	3036	B 12	3060	B 11	3096	A 10	3536	C 8	3598	C 1	3642	A 2	3684	A 3	3780	C 8	7092	B 10	7564	C 6	7678	B 2		

S-VHS Board - Comb Filter (CF)


SH 1524/3
CVBS
TR
FBAS_TR
3005
100
2005
10N
+5V*
2001
10N
2002
0,1U
2003
0,1U
4,9V
GND PLL
VCC PLL
A GND
VCC
O GND
Vcco
DGND
VDD
i.c.
SAA4961
7010
SYNC SEPERATOR
CLAMP
LPF
S1
DELAY LINE
DELAY COMPENSATION
COMB FILTER
BPF
S2A
S2B
S2C
BIAS
CLOCK CONTROL
CURRENT REFFERNCE
SSYN
FSN
COMBENA
SYS1
SYS2
+5V_CF
3006
1K
2004
0,1U
CVBS
SVHS
3080
3002
1K
0,3V
1,3V
3004
1K
7306
BC858B
2006
0,1U
1,2V
1,7V
1,4V
0,9V
2,0V
4,7V
1526/9
E1/E2/E4
CH
2007
10N
1,1V
1526/7
3008
470
2008
470
3009
100K
SR6
7080/13
FSC
FSC-1
SH 1525/12
2014
0,1U
2016
100U/10V
1,2V
86
87
88
89
90
91
94
95
1530
PB-FM
627KHZ
UNC.FM
FM T.T.
SVHS DET
HI-P
MIX.SYN
PB
SC
SH 3536
SH 1524/10
SH
SH 3807
SF
SH 3765
SH 3592
SH 2490
SH 7520/42
SH 3791
SH 3795
SH 1525/13
SH 7520/46
SH 3780
SH 1525/12
SH 1525/5
SH 1525/9
PB-FM
CH>BAND
FM-UNC
FM>BAND
SVHS-DET
HP1
FFP
UREF_SVHS
UREF_VHS
SYNC
IPBV
FSC-1
SECIDENT
5A1
M
PCB MOTHERBOARD, VS
1531
FBAS/YC
NC
SH 1524/1
AUTO SEC
SH 1524/4
U/AUTOSE
STROBE
CLOCK
DATA
DATA5
SH 7800/1
CROT
HI-CH
SH 7492
5SW3
VBS
BAS_1
3043
+12VF
SH 3812
FSE_SVHS
H/2
SH 1524/5
CVBS
FBAS_V_VS
7046
5140
33UH
2142
10N
2140
100U/10V
5A1
2080
10N
5,1V
7080
HEF4094
SR 6S
DATA6
SH 7806/2
0V
5,0V
SR1
SR2
SR3
SR4
SR5
SR6
SR7
SR8
7030/2
7030/4
3112
7050/4
7050/7
7010/3
Y_RGB
9526
1526
YVT
VT
CVT
3034
7110
7060/4
DOS REC.
DOS
7111
7060/7
GANZE SEITE
7545
C_SVHS-OUT
7066
Y_V_SVHS
3002
SVHS
FBAS_Z_SVHS
SH 1525/10
2007
C_E1/E2/E4
B
BLAU
SH 1525/4
SH 1524/15
G
GRUEN
SH 1525/3
SH 1525/8
R
ROT
SH 1525/2
PCB IO BOARD, IO
A
Y3080
1K
Y1002
IN SEL4155 OUT
GND1
GND2
1 2 3 4 5 6 7 8
A B C D E F G H I J



7
8
9
10
11
12
13
14
5010
33UH
5SW3
X2012 10N
2010 220U/10V
2003
0,1U
VCC
O GND
Vcco
DGND
VDD
i.c.
4961
DELAY COMPENSATION
DELAY LINE
COMB FILTER
BPF
LPF
S2A
S2B
S2C
CVBSO
Yo
Co
1,1V
1,5V
1,3V
1,0V
COMBENA
SYS1
SYS2
CURRENT REFFERNCE
VOLTAGE REFFERNCE
1,2V
2014 0,1U
X 2016 100U/10V
2018 0,1U
2020 100U/10V
SH 1525/12
92
93
+5V_CF
2030 10N
4,9V
VSS
SW1
SW2
IN1
IN2
IN3
OUT
GND
2022 10N
2024 10N
Y2026 10N
2,9V
2,1V
C_SP/RGB
CH
SP/RGB
SH 1525/7
NJM2234M
7030
0V
5,0V
SR1
SR2
7080/4
7080/5
3032 470
5011 15UH 5%
3034 470
VT
1526/16
2035 82P
2037 82P
X 3038 100
2032 10N
2034 10N
2036 10N
2038 10N
2040 10N
3044 1K
3045 100
X 3036 100
IN1A
IN0A
CTLA
CTLB
IN0B
IN1B
OUTA
OUTB
BA7604N
7040
2,4V
0,7V
0,8V
1,7V
Y3110 0
Y7110 BC858B
UT-REC
1526/15
D
E
Y 3112 10K
Y3113 10K
SR3
7080/6
FULL PAGE GANZE_SEITE
DOS
1526/14
Y7111 BC858B
Y3115 0
Y3046 100
Y7046 BC858B
Y3048
+5V_CF
2050 10N
M
2042 10U/50V
2044 10U/50V
2046 10N
2048 10N
7050
BA7604N
SR4
SR5
7080/7
7080/14
5,1V
2,5V
Y 3072 0
B
Y 2070 10N
Y 2072 10U/50V
Y 2074 10U/50V
Y 2076 10U/50V
SR7
SR8
Y_RGB
CVBS
RGB
SH 1525/1
Y_TR
Y 7070
5A1
7080
HEF4094
SR 6S
SR6
7030/2
7030/4
3112
7050/4
7050/7
7010/3
X 3054 1K
2060 10N
2052 1U/100V
2054 1U/100V
2056 1U/100V
2058 1U/100V
7060
BA7605N
2,0V
2,2V
0,6V
1,0V
0,9V
2,3V
3060 1K
3064 100
X 3068 100
YVT
3056 470
3058 470
A
Y3084 4,7K
Y3086 2,2K
Y2084 120P
Y 1004 CODE741
CVBS
SVHS
FBAS_Z_SVHS
3002
Y3080 1K
Y1002 SEL4155
IN
OUT
GND1
GND2
Y3082 1K
Y7082 BC858B
Y3096 220
Y 5094 15UH 5%
Y2094 150P 5%
Y 7092 BC848B
Y3094 560
Y3079 220
Y3098 2,2K
Y7098 BC858B
Y3102 220
Y 5106 15UH 5%
Y2106 150P 5%
Y7102 BC848B
Y3106 470
Y3104 220
Y3108 2,2K
Y7108 BC858B
S-VHS Board, CF



11
12
13
14
15
16
17
18
A
B
C
D
E
F
G
H
I
J
+5V_CF
3032
470
5011
15UH 5%
3034
470
CH
VT
1526/16
2030
10N
2035
82P
2037
82P
5A1
SH
+12VF
SH
X 3038
100
85
3042
1K
2,3V
FBAS/CH
CVBS
CH
SH 1524/2
7042
BC858B
NJM2234M
7030
VSS
SW1
SW2
IN1
IN2
IN3
OUT
GND
0V
5,0V
SR1
7080/4
SR2
7080/5
2,9V
2,1V
4,9V
2022
2024
2026
10N
P/RGB
SW1 SW2 OUT
L L IN1
H L IN2
X H IN3
SH 1525/7
2032
10N
2034
10N
2036
10N
2038
10N
2,4V
0,7V
0,8V
7040
BA7604N
IN1A
VCC
IN0A
OUTA
CTLA
CTLB
IN0B
OUTB
IN1B
GND
2040
10N
3044
1K
3040
100
1,7V
3045
100
7545
BC858B
CH
C_SVHS-OUT
1526/13
X3036
100
C
3048
1K
Y7046
BC858B
CVBS
FBAS_V_VS
1531/17
Y3046
100
1530/8
HI-P
HP1
SH 2490
C_SP/RGB
2026
CH
SP/RGB
SH 1525/7
2008
FSC
FSC-1
SH 1525/12
Y3110
0
UT-REC
Y7110
BC858B
D
E
Y 3112
10K
SR3
7080/6
Y3113
10K
PAGE
E_SEITE
DOS
Y7111
BC858B
Y3115
0
3041
1K
2,6V
3043
100
VBS
BAS_1
1,9V
7043
BC858B
1531/11
1531/1
CH
SH 1524/1
FBAS/YC
2050
10N
M
2042
10U/50V
7050
BA7604N
2044
10U/50V
BAS
VBS
SH 3749
VIDEO_OUT
CVBS
SH 7588
SR4
7080/7
SR5
7080/14
5,1V
0V
2046
10N
2048
10N
1531/4
U/AUTOSE
AUTO SEC
SH 1524/4
EE/PB_CH
CH
EE/PB
SH 1525/14
1531/9
HI-CH
CROT
SH 7492
B
NJM2234M
Y 7070
SR7
SR8
X 3054
1K
2060
10N
3062
1K
VIDEO_IN
CVBS
VBS
SH 2591
2052
1U/100V
2054
1U/100V
2056
1U/100V
2058
1U/100V
2,0V
2,2V
2,4V
7060
BA7605N
1526/15
1526/14
0,6V
1,0V
3060
1K
1,2V
1,6V
7062
BC858B
3066
1K
Y_V_SVHS
2074
CVBS
RGB
Y_RGB
SH 1525/1
3064
100
0,9V
7066
BC858B
X 3068
100
YVT
3056
470
3058
470
1526/11
VBS
FBAS_Z_SVHS
CVBS
SVHS
SH 1525/10
Y3086
2,2K
Y3096
220
Y 5094
15UH 5%
Y2094
150P 5%
Y 7092 BC848B
Y3094
560
Y3079
220
Y3098
2,2K
Y7098
BC858B
Y3102
220
Y 5106
15UH 5%
Y2106
150P 5%
Y7102
BC848B
Y3106
470
Y3104
220
Y3108
2,2K
Y7108
BC858B
CF

.... DC VOLTAGES FOR ALL MODUS

...V DC VOLTAGES MEASURED PLAYBACK

...V DC VOLTAGES MEASURED RECORD

1002	J8
1004	I10
1526	G1
1530	B1
1531	E1
2001	A5
2002	A6
2003	A7
2004	A4
2005	A4
2006	B4
2007	C4
2008	C5
2010	A9
2012	A9
2014	D8
2016	D8
2018	D9
2020	D9
2022	B10
2024	B10
2026	C10
2030	A11
2032	B13
2034	B13
2035	A12
2036	C13
2037	A13
2038	C13
2040	B14
2042	E14
2044	E14
2046	E14
2048	E14
2050	D13
2052	F12
2054	F13
2056	G13
2058	G12
2060	F14
2070	F10
2072	F9
2074	G9
2076	G9
2080	F6
2084	I10
2094	I11
2106	I13
2140	E5
2142	E4
3002	B3
3004	B3
3005	A4
3006	A4
3008	C5
3009	C5
3032	A12
3034	A13
3036	C13
3038	A14
3040	B15
3041	D15
3042	B16
3043	D16
3044	B14
3045	C14
3046	D14
3048	C14
3054	F13
3056	H12
3058	H12
3060	G14
3062	F15
3064	G14
3066	G16
3068	G14
3072	E10
3079	J11
3080	J8
3082	J9
3084	I9
3086	I10
3094	J11
3096	I11
3098	I12
3102	I13
3104	J13
3106	I13
3108	I14
3110	C11
3112	D12
3113	D12
3115	E11

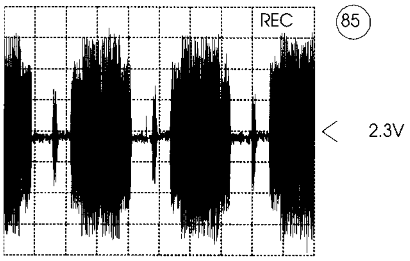
1002	J8
1004	I10
1526	G1
1530	B1
1531	E1
2001	A5
2002	A6
2003	A7
2004	A4
2005	A4
2006	B4
2007	C4
2008	C5
2010	A9
2012	A9
2014	D8
2016	D8
2018	D9
2020	D9
2022	B10
2024	B10
2026	C10
2030	A11
2032	B13
2034	B13
2035	A12
2036	C13
2037	A13
2038	C13
2040	B14
2042	E14
2044	E14
2046	E14
2048	E14
2050	D13
2052	F12
2054	F13
2056	G13
2058	G12
2060	F14
2070	F10
2072	F9
2074	G9
2076	G9
2080	F6
2084	I10
2094	I11
2106	I13
2140	E5
2142	E4
3002	B3
3004	B3
3005	A4
3006	A4
3008	C5
3009	C5
3032	A12
3034	A13
3036	C13
3038	A14
3040	B15
3041	D15
3042	B16
3043	D16
3044	B14
3045	C14
3046	D14
3048	C14
3054	F13
3056	H12
3058	H12
3060	G14
3062	F15
3064	G14
3066	G16
3068	G14
3072	E10
3079	J11
3080	J8
3082	J9
3084	I9
3086	I10
3094	J11
3096	I11
3098	I12
3102	I13
3104	J13
3106	I13
3108	I14
3110	C11
3112	D12
3113	D12
3115	E11
5010	A10
5011	A13
5094	I11
5106	I13
5140	D4
7010	B6
7030	C11
7040	B13
7042	B16
7043	D15
7046	D14
7050	E13
7060	G14
7062	G15
7066	G16
7070	G11
7080	F6
7082	I9
7092	I11
7098	I12
7102	I13
7108	I14
7110	D12
7111	E12
7306	B4
7545	C15

Interconnections:

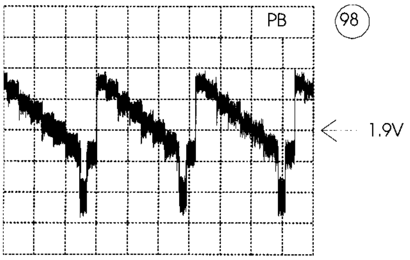
PS page 3-27
FE page 3-29/31
TM page 3-34
SE page 3-35
HC page 3-36
VS page 3-37
DE page 3-38
OS page 3-39
CC page 3-40
VP page 3-41
IO page 3-44
AU page 3-45
VT page 3-46
CF page 3-50
SH page 3-51
SF page 3-53
SP page 3-54
DC page 3-57...

Note on the components:
"X" components are not used
"Y" components are optional

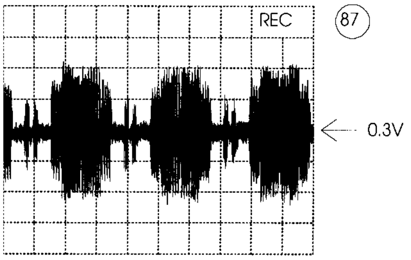
	For sets with
Y2074	RGB-REC
Y3072	PAL
A	SEC to PAL
B Y2026	SEC to PAL & RGB-REC
C	TXT
D	TXT & PAL
E	TXT & SECAM



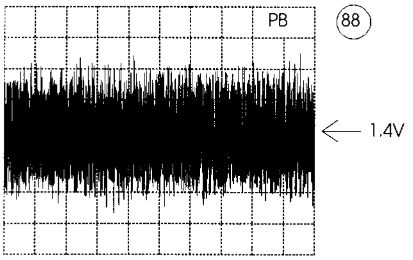
A: AC, 100mV/Div, 20us/Div
Connector 1524 Pin 2



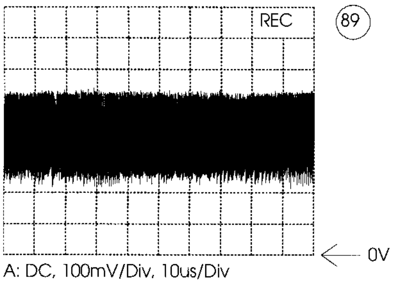
A: AC, 200mV/Div, 20us/Div
IC 7615 Pin 8



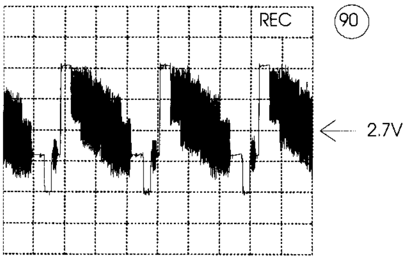
A: AC, 50mV/Div, 20us/Div
Connector 1530 Pin 2



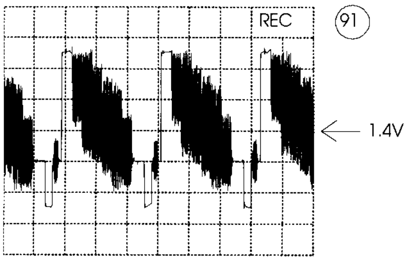
A: AC, 100mV/Div, 10us/Div
Connector 1530 Pin 4



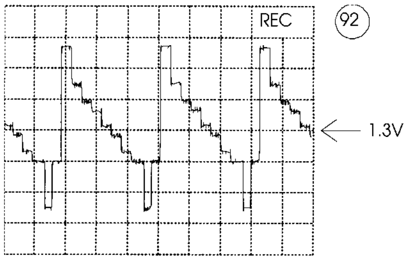
A: DC, 100mV/Div, 10us/Div
Connector 1530 Pin 6



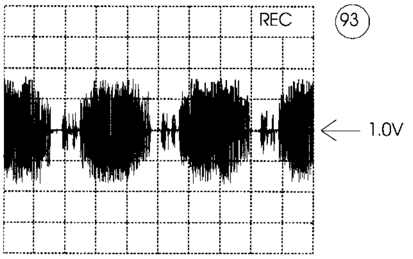
A: AC, 500mV/Div, 20us/Div
Connector 1526 Pin 9



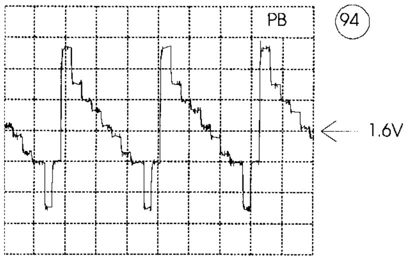
A: AC, 200mV/Div, 20us/Div
IC 7010 Pin 17



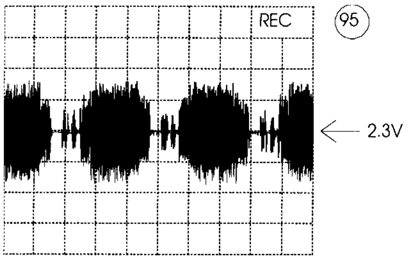
A: AC, 200mV/Div, 20us/Div
IC 7010 Pin 14



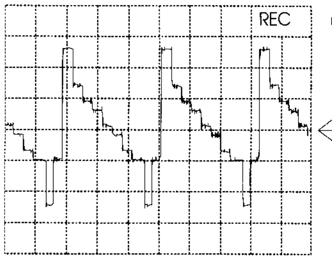
A: AC, 200mV/Div, 20us/Div
IC 7010 Pin 12



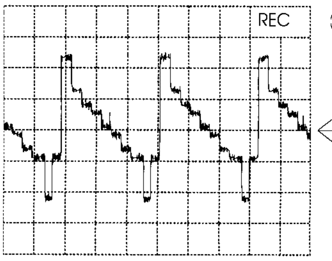
A: AC, 200mV/Div, 20us/Div
Connector 1526 Pin 11



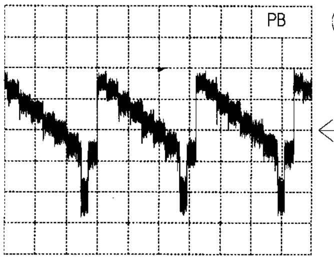
A: AC, 200mV/Div, 20us/Div
Connector 1526 Pin 13



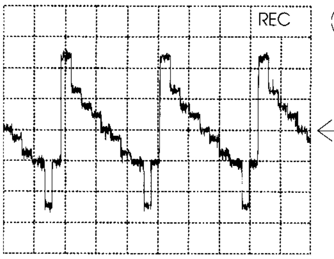
A: AC, 200mV/Div, 20us/Div
IC 7520 Pin 48



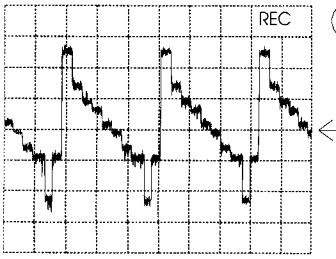
A: AC, 100mV/Div, 20us/Div
IC 7520 Pin 4



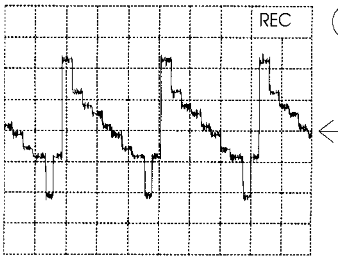
A: AC, 200mV/Div, 20us/Div
IC 7615 Pin 8



A: AC, 50mV/Div, 20us/Div
IC 7520 Pin 16

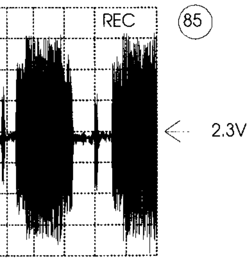


A: AC, 50mV/Div, 20us/Div
IC 7520 Pin 14



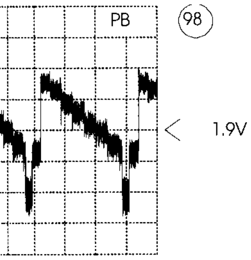
A: AC, 100mV/Div, 20us/Div
IC 7520 Pin 6

(85)



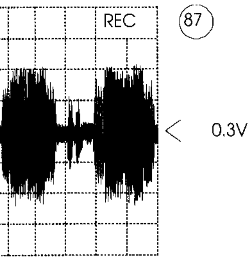
, 20us/Div
in 2

(98)



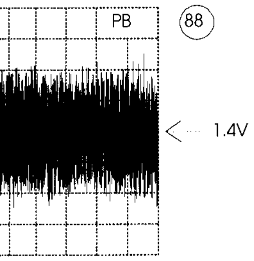
, 20us/Div

(87)



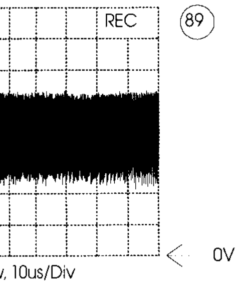
20us/Div
in 2

(88)



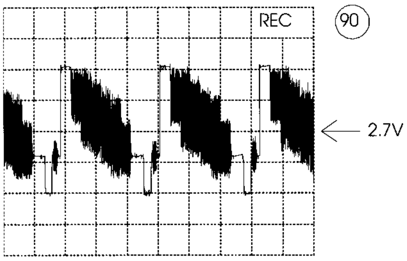
, 10us/Div
in 4

(89)



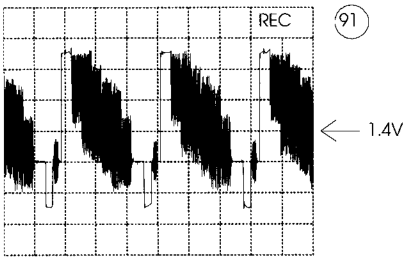
, 10us/Div
in 6

(90)



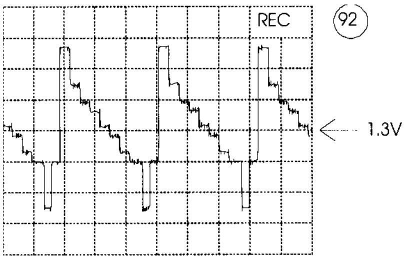
A: AC, 500mV/Div, 20us/Div
Connector 1526 Pin 9

(91)



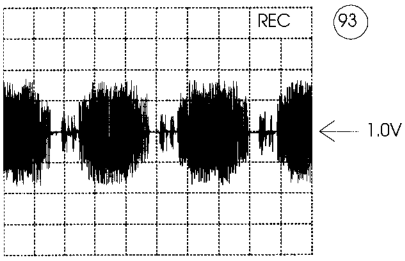
A: AC, 200mV/Div, 20us/Div
IC 7010 Pin 17

(92)



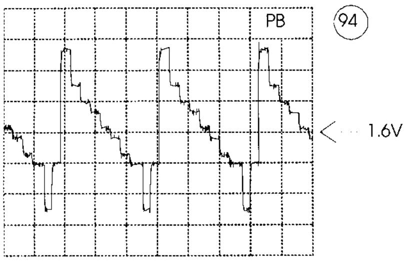
A: AC, 200mV/Div, 20us/Div
IC 7010 Pin 14

(93)



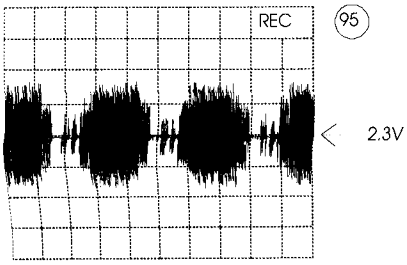
A: AC, 200mV/Div, 20us/Div
IC 7010 Pin 12

(94)



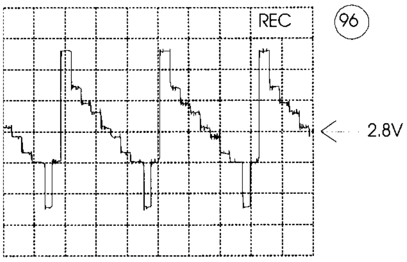
A: AC, 200mV/Div, 20us/Div
Connector 1526 Pin 11

(95)



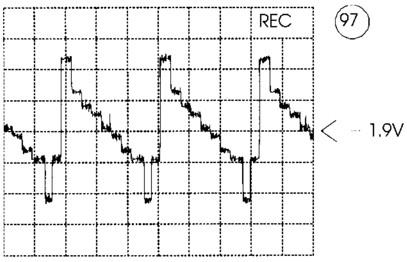
A: AC, 200mV/Div, 20us/Div
Connector 1526 Pin 13

(96)



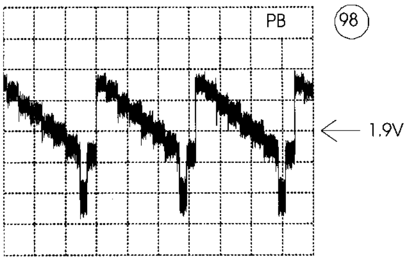
A: AC, 200mV/Div, 20us/Div
IC 7520 Pin 48

(97)



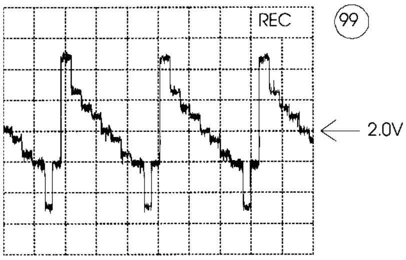
A: AC, 100mV/Div, 20us/Div
IC 7520 Pin 4

(98)



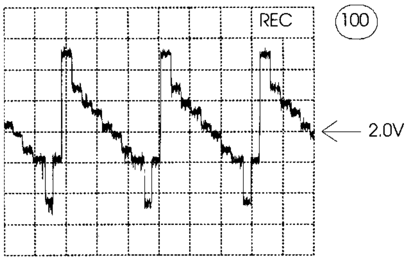
A: AC, 200mV/Div, 20us/Div
IC 7615 Pin 8

(99)



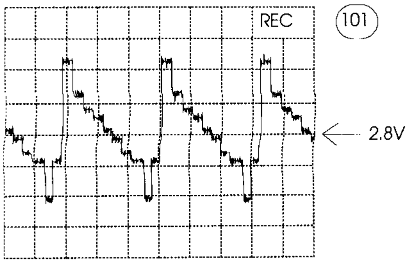
A: AC, 50mV/Div, 20us/Div
IC 7520 Pin 16

(100)



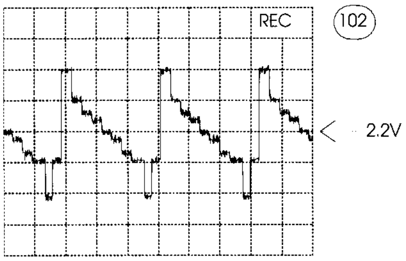
A: AC, 50mV/Div, 20us/Div
IC 7520 Pin 14

(101)



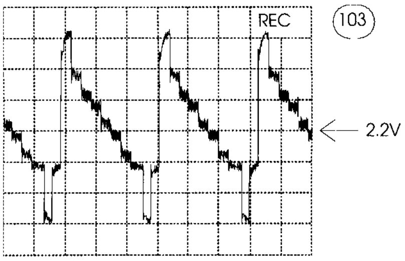
A: AC, 100mV/Div, 20us/Div
IC 7520 Pin 6

(102)



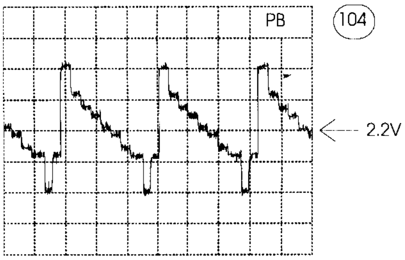
A: AC, 100mV/Div, 20us/Div
IC 7520 Pin 8

(103)



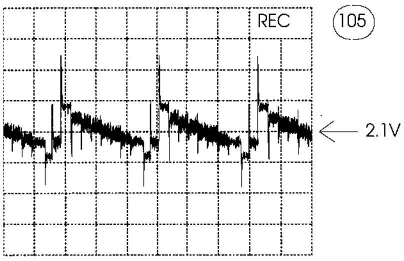
A: AC, 200mV/Div, 20us/Div
IC 7700 Pin 7

(104)



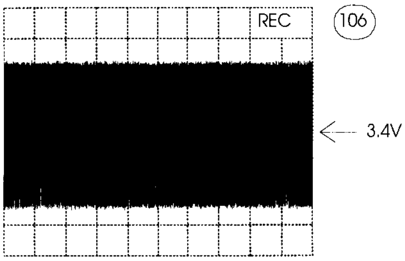
A: AC, 100mV/Div, 20us/Div
IC 7520 Pin 7

(105)



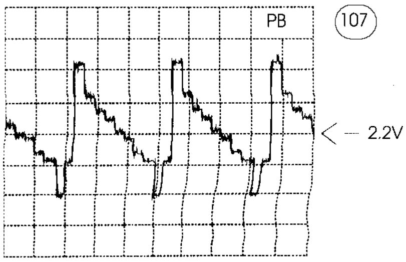
A: AC, 200mV/Div, 20us/Div
IC 7520 Pin 19

(106)



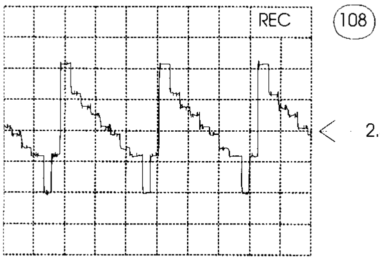
A: AC, 200mV/Div, 20us/Div
IC 7520 Pin 25

(107)

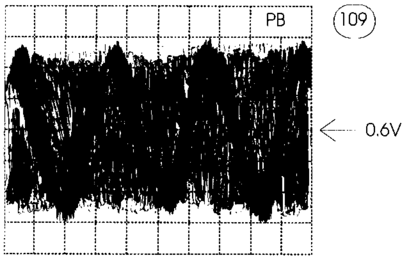


A: AC, 100mV/Div, 20us/Div
IC 7520 Pin 9

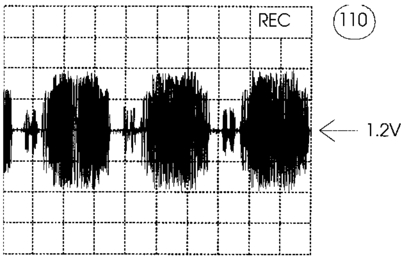
S-VHS Board - Luminance Processing (SH)



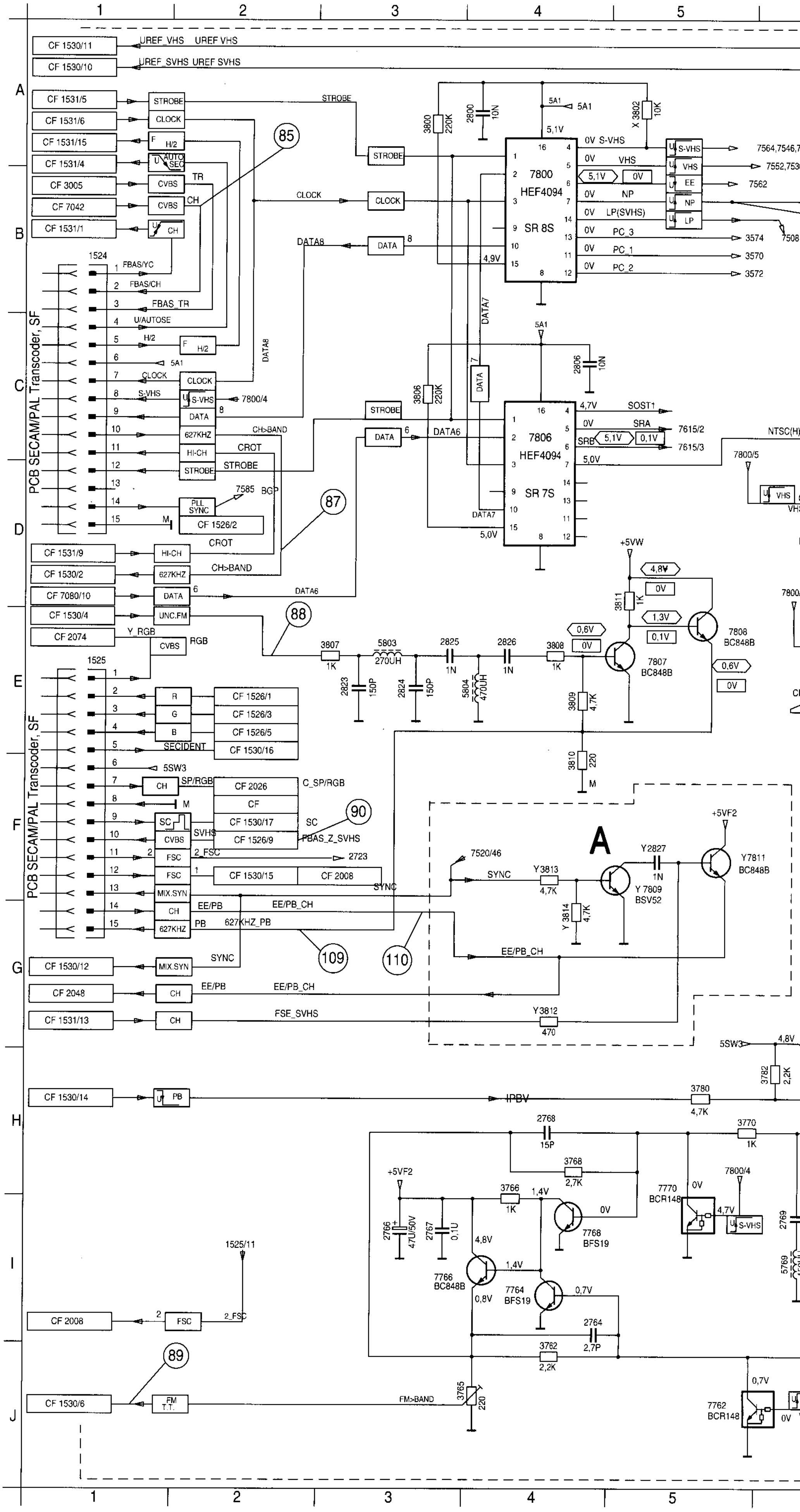
A: AC, 500mV/Div, 20us/Div
IC 7520 Pin 43



A: AC, 50mV/Div, 500us/Div
Connector 1525 Pin 15



A: AC, 200mV/Div, 20us/Div
Connector 1525 Pin 14

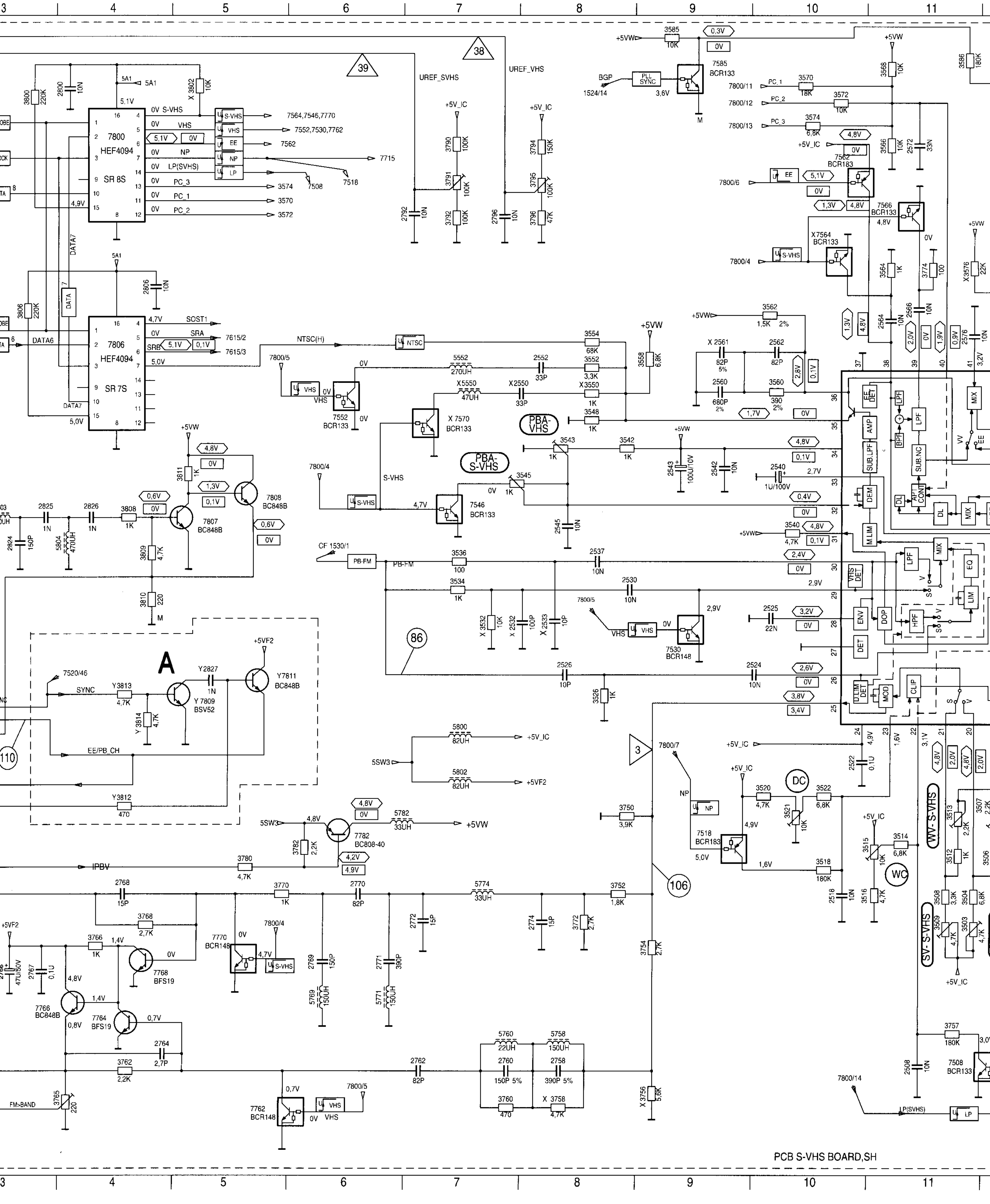

1
2
3
4
5
A
B
C
D
E
F
G
H
I
J
CF 1530/11
CF 1530/10
UREF_VHS UREF VHS
UREF_SVHS UREF SVHS
CF 1531/5
CF 1531/6
CF 1531/15
CF 1531/4
CF 3005
CF 7042
CF 1531/1
STROBE
CLOCK
DATA
7800 HEF4094 SR 8S
7806 HEF4094 SR 7S
3800 220K
2800 10N
X 3802 10K
5A1
5,1V
4,9V
4,7V
5,0V
S-VHS
VHS
EE
NP
LP
0V S-VHS
0V VHS
0V NP
0V LP(SVHS)
0V PC_3
0V PC_1
0V PC_2
7564,7546,7
7552,753
7562
3574
3570
3572
DATA7
DATA8
DATA6
SOST1
SRA
SRB
7615/2
7615/3
7800/5
NTSC(H)
2806 10N
3806 220K
PCB SECAM/PAL Transcoder, SF
1524
FBAS/YC
FBAS/CH
FBAS_TR
U/AUTOSE
H/2
CLOCK
S-VHS
7800/4
627KHZ
HI-CH
CH>BAND
CROT
PLL SYNC
7585 BGP
CF 1526/2
CF 1531/9
CF 1530/2
CF 7080/10
CF 1530/4
CF 2074
UNC.FM
Y_RGB
CVBS
RGB
85
87
88
89
90
109
110
3807 1K
5803 270UH
2825 1N
2826 1N
3808 1K
2823 150P
2824 150P
5804 470UH
3809 4,7K
3810 220
M
+5VW
3811 1K
4,8V
0,6V
1,3V
0,1V
0V
7807 BC848B
7808 BC848B
1525
R
G
B
CF 1526/1
CF 1526/3
CF 1526/5
CF 1530/16
SECIDENT
5SW3
CH
SP/RGB
CF 2026
C_SP/RGB
CF
CF 1530/17
CF 1526/9
SC
SVHS
FBAS_Z_SVHS
FSC
2_FSC
2723
CF 1530/15
CF 2008
SYNC
MIX.SYN
EE/PB
EE/PB_CH
PB
627KHZ_PB
A
7520/46
Y3813 4,7K
Y 3814 4,7K
Y2827 1N
Y 7809 BSV52
Y7811 BC848B
+5VF2
CF 1530/12
CF 2048
CF 1531/13
FSE_SVHS
Y3812 470
3782 2,2K
CF 1530/14
IPBV
3780 4,7K
2768 15P
3770 1K
3768 2,7K
3766 1K
1,4V
7768 BFS19
7770 BCR148
7800/4
2766 47U/50V
2767 0,1U
7766 BC848B
0,8V
7764 BFS19
0,7V
2764 2,7P
3762 2,2K
1525/11
CF 2008
CF 1530/6
FM T.T.
FM>BAND
3765 220
7762 BCR148

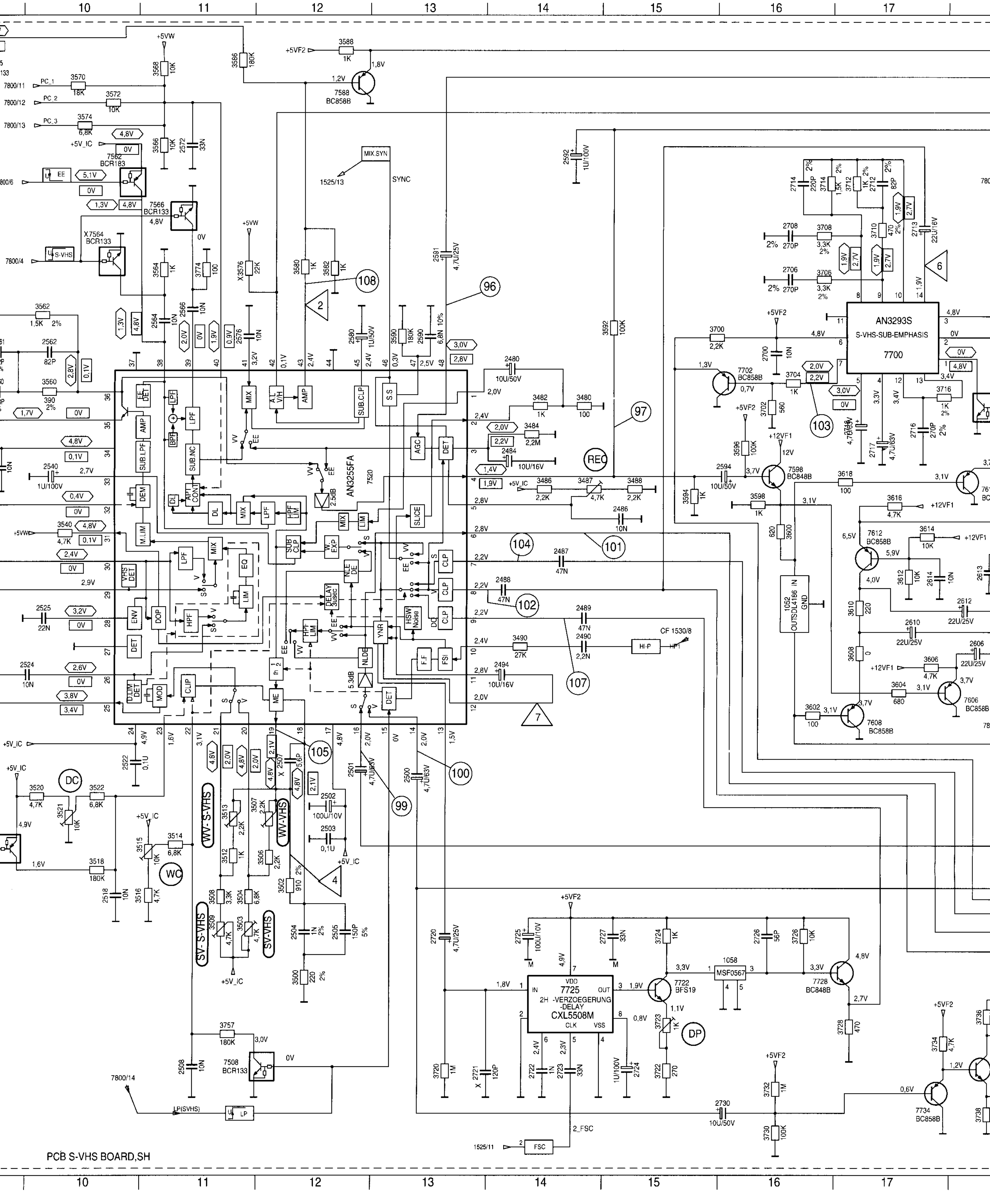
Interconnections:

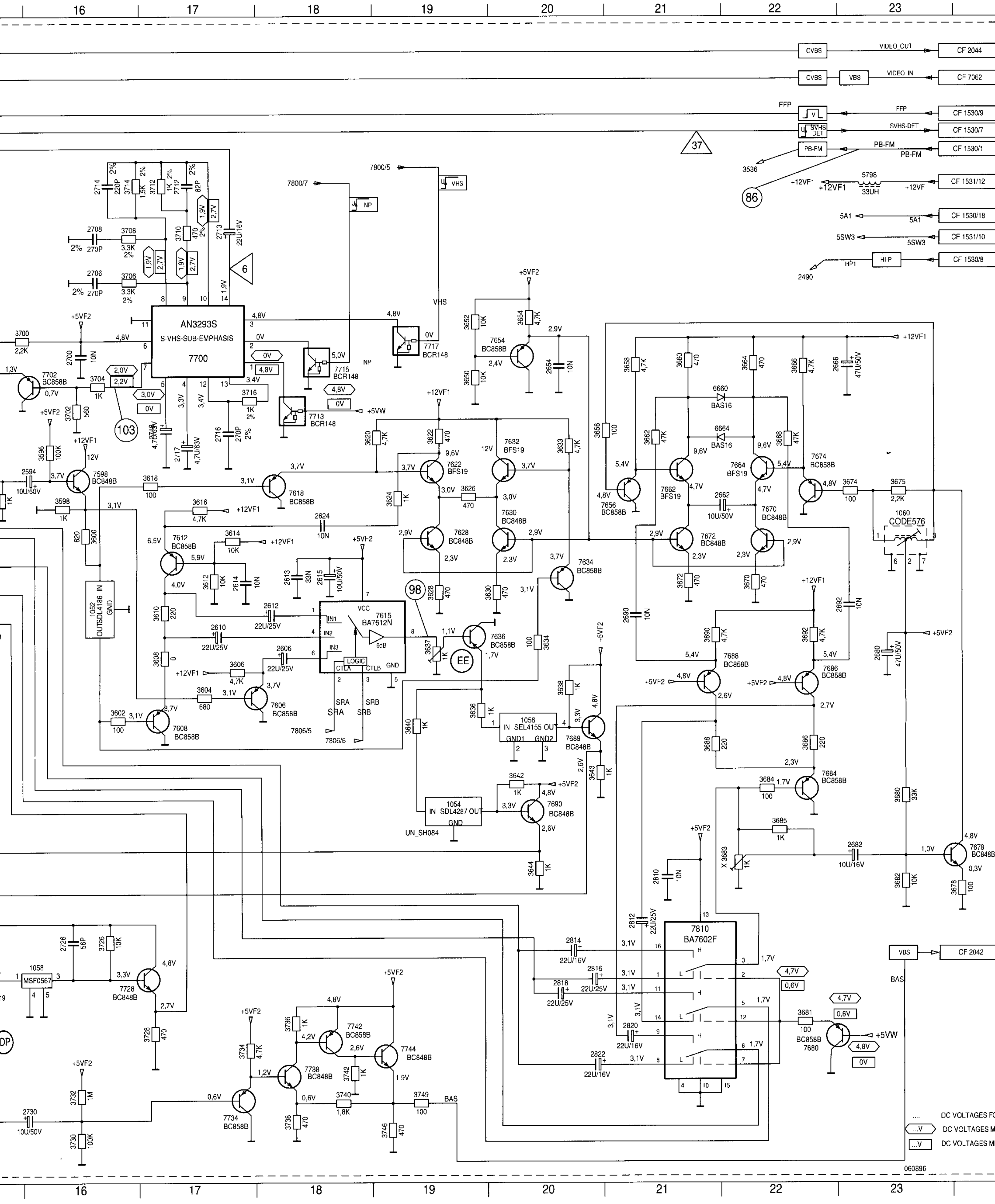
PS page 3-27
FE page 3-29/31
TM page 3-34
SE page 3-35
HC page 3-36
VS page 3-37
DE page 3-38
OS page 3-39
CC page 3-40
VP page 3-41
IO page 3-44
AU page 3-45
VT page 3-46
CF page 3-50
SH page 3-51
SF page 3-53
SP page 3-54
DC page 3-57...

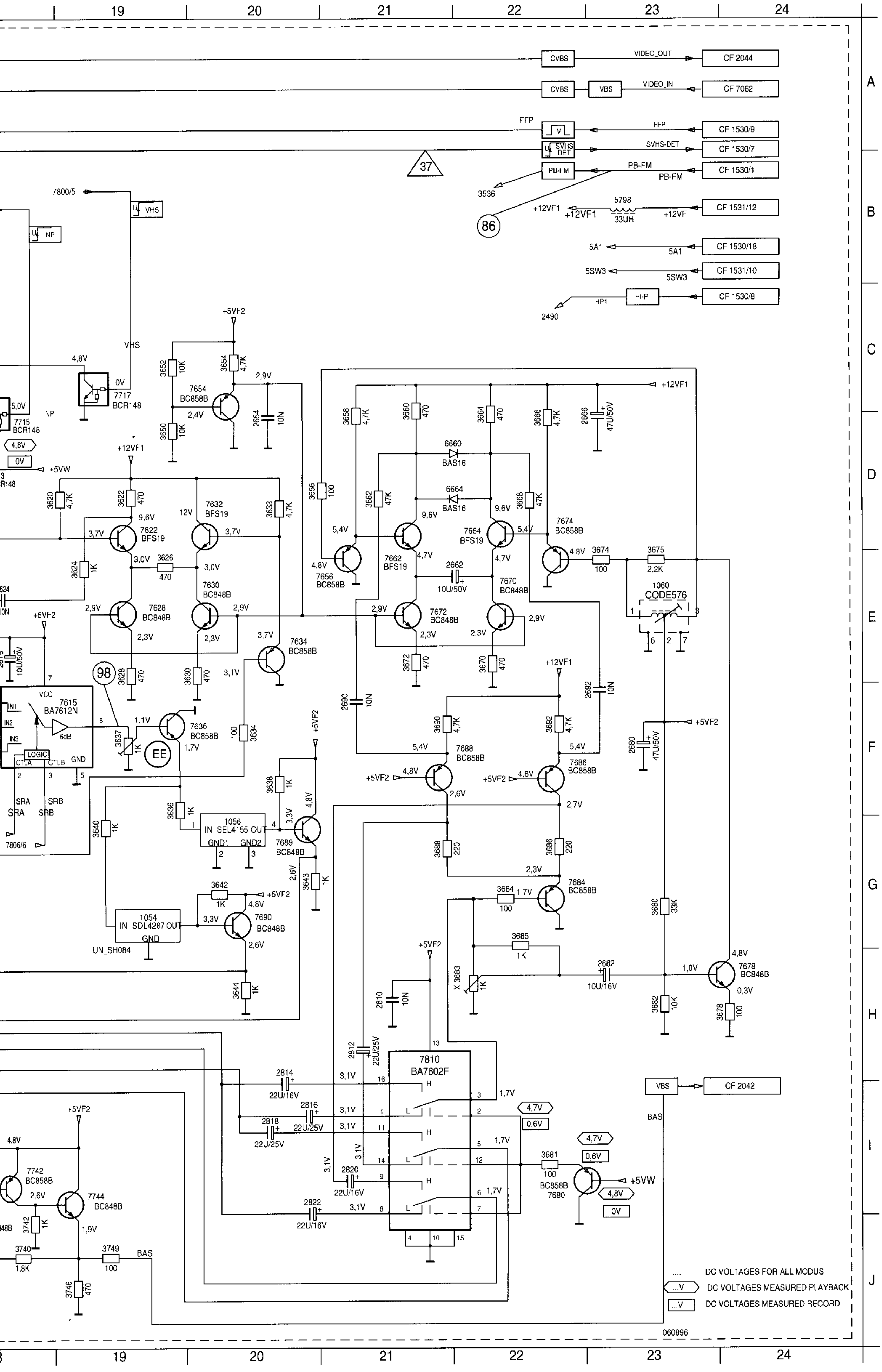
Note on the components:
"X" components are not used
"Y" components are optional

essing (SH)


3
4
5
6
7
8
9
10
11
7800
HEF4094
SR 8S
7806
HEF4094
SR 7S
S-VHS
VHS
EE
NP
LP
LP(SVHS)
PC_3
PC_1
PC_2
7564,7546,7770
7552,7530,7762
7562
7715
7508
7518
3574
3570
3572
5A1
DATA7
DATA6
SOST1
SRA
SRB
7615/2
7615/3
39
38
UREF_SVHS
UREF_VHS
+5V_IC
+5VW
BGP
1524/14
PLL SYNC
7585
BCR133
7800/11
7800/12
7800/13
7800/6
7800/4
7800/5
7800/7
7800/14
X7564
7566
NTSC(H)
NTSC
PBA-VHS
PBA-S-VHS
7552
BCR133
X 7570
7546
CF 1530/1
PB-FM
7530
BCR148
86
A
SYNC
7520/46
Y7809
BSV52
Y7811
BC848B
7807
BC848B
7808
EE/PB_CH
110
5SW3
+5VF2
7782
BC808-40
IPBV
3
106
DC
WC
7518
BCR183
7770
BCR148
7768
BFS19
7766
BC848B
7764
BFS19
7762
BCR148
FM>BAND
7508
BCR133
LP(SVHS)
EE DET
LPF
AMP
BPF
SUB.LPF
SUB.NC
MIX
DEM
AP1 CONT
DL
M.LIM
VHS DET
EQ
LIM
ENV
DOP
HPF
DET
U.LIM DET
MOD
CLIP
WV-S-VHS
SV-S-VHS
PCB S-VHS BOARD,SH


10
11
12
13
14
15
16
17
AN3255FA
7520
AN3293S
S-VHS-SUB-EMPHASIS
7700
7725
2H -VERZOEGERUNG -DELAY
CXL5508M
VDD
IN
OUT
CLK
VSS
7588
BC858B
7562
BCR183
7566
BCR133
X7564
BCR133
7702
BC858B
7598
BC848B
7612
BC858B
7606
BC858B
7608
BC858B
7722
BFS19
7728
BC848B
7734
BC858B
7508
BCR133
1058
MSF0567
1052
OUTSDL4186 IN
GND
MIX.SYN
1525/13
SYNC
HI-P
CF 1530/8
HP1
FSC
2_FSC
1525/11
LP(SVHS)
LP
7800/14
7800/11
7800/12
7800/13
7800/4
PC_1
PC_2
PC_3
EE
S-VHS
+5VW
+5VF2
+5V_IC
+12VF1
REC
DC
WC
DP
WV-S-VHS
WV-VHS
SV-S-VHS
SV-VHS
96
97
99
100
101
102
103
104
105
107
108
PCB S-VHS BOARD,SH


16
17
18
19
20
21
22
23
CVBS
VIDEO_OUT
CF 2044
CVBS
VBS
VIDEO_IN
CF 7062
FFP
CF 1530/9
SVHS-DET
CF 1530/7
PB-FM
CF 1530/1
37
3536
86
+12VF1
5798
33UH
+12VF
CF 1531/12
5A1
CF 1530/18
5SW3
CF 1531/10
HI-P
HP1
CF 1530/8
2490
7800/5
7800/7
VHS
NP
6
AN3293S
S-VHS-SUB-EMPHASIS
7700
7715
BCR148
7713
BCR148
7717
BCR148
+5VW
103
7702
BC858B
7598
BC848B
7618
BC858B
7612
BC858B
7606
BC858B
7608
BC858B
1052
OUTSDL4186 IN GND
7615
BA7612N
LOGIC
SRA
SRB
7806/5
7806/6
98
EE
7622
BFS19
7632
BFS19
7628
BC848B
7630
BC848B
7634
BC858B
7636
BC858B
7654
BC858B
1056
IN SEL4155 OUT
GND1 GND2
7689
BC848B
1054
IN SDL4287 OUT
GND
UN_SH084
7690
BC848B
7656
BC858B
7662
BFS19
6660
BAS16
6664
BAS16
7664
BFS19
7674
BC858B
7672
BC848B
7670
BC858B
1060
CODE576
7688
BC858B
7686
BC858B
7684
BC858B
7678
BC848B
+5VF2
7810
BA7602F
VBS
CF 2042
BAS
7680
BC858B
1058
MSF0567
7728
BC848B
7734
BC858B
7738
BC848B
7742
BC858B
7744
BC848B
DP
DC VOLTAGES FO
DC VOLTAGES M
DC VOLTAGES M
060896


19
20
21
22
23
24
A
B
C
D
E
F
G
H
I
J
CVBS
VIDEO_OUT
CF 2044
CVBS
VBS
VIDEO_IN
CF 7062
FFP
FFP
CF 1530/9
SVHS DET
SVHS-DET
CF 1530/7
37
PB-FM
PB-FM
PB-FM
CF 1530/1
3536
86
+12VF1
+12VF1
5798
33UH
+12VF
CF 1531/12
5A1
5A1
CF 1530/18
5SW3
5SW3
CF 1531/10
HP1
HI-P
CF 1530/8
2490
7800/5
VHS
NP
VHS
4,8V
7717
BCR148
0V
5,0V
7715
BCR148
NP
4,8V
0V
+5VW
+5VF2
3652 10K
3654 4,7K
2,9V
7654
BC858B
2,4V
2654 10N
3650 10K
+12VF1
3620 4,7K
3622 470
9,6V
12V
7632
BFS19
3633 4,7K
3,7V
7622
BFS19
3,7V
3,0V
3626 470
3,0V
3624 1K
7630
BC848B
2,9V
7628
BC848B
2,9V
2,3V
2,3V
3,7V
7634
BC858B
3,1V
98
3628 470
3630 470
10U/50V
VCC
7615
BA7612N
IN1
IN2
IN3
6dB
LOGIC
CTLA
CTLB
GND
3637 1K
1,1V
7636
BC858B
1,7V
EE
3634 100
+5VF2
SRA
SRA
SRB
SRB
7806/6
3640 1K
3636 1K
1056
IN SEL4155 OUT
GND1 GND2
3638 1K
3,3V
4,8V
7689
BC848B
2,6V
3643 1K
3642 1K
+5VF2
4,8V
1054
IN SDL4287 OUT
GND
3,3V
7690
BC848B
2,6V
UN_SH084
3644 1K
+12VF1
3658 4,7K
3660 470
3664 470
3666 4,7K
2666 47U/50V
3656 100
6660
BAS16
6664
BAS16
3662 47K
9,6V
9,6V
3668 47K
5,4V
7664
BFS19
5,4V
7674
BC858B
4,8V
7656
BC858B
7662
BFS19
4,7V
4,7V
2662
10U/50V
7670
BC848B
4,8V
3674 100
3675 2,2K
1060
CODE576
2,9V
7672
BC848B
2,3V
2,3V
2,9V
3672 470
3670 470
+12VF1
2690 10N
2692 10N
3690 4,7K
3692 4,7K
5,4V
5,4V
7688
BC858B
7686
BC858B
+5VF2
4,8V
2,6V
+5VF2
4,8V
2,7V
3688 220
3686 220
2,3V
7684
BC858B
3684 100
1,7V
3685 1K
X 3683 1K
2682 10U/16V
1,0V
4,8V
7678
BC848B
0,3V
3680 33K
3682 10K
3678 100
2680 47U/50V
+5VF2
+5VF2
2810 10N
2812 22U/25V
7810
BA7602F
2814 22U/16V
3,1V
2816 22U/25V
3,1V
2818 22U/25V
3,1V
3,1V
3,1V
2820 22U/16V
2822 22U/16V
3,1V
1,7V
4,7V
0,6V
1,7V
1,7V
3681 100
BC858B
7680
4,7V
0,6V
+5VW
4,8V
0V
VBS
CF 2042
BAS
+5VF2
4,8V
7742
BC858B
2,6V
7744
BC848B
3742 1K
1,9V
3740 1,8K
3749 100
BAS
3746 470
060896

.... DC VOLTAGES FOR ALL MODUS

⟨...V⟩ DC VOLTAGES MEASURED PLAYBACK

[...V] DC VOLTAGES MEASURED RECORD

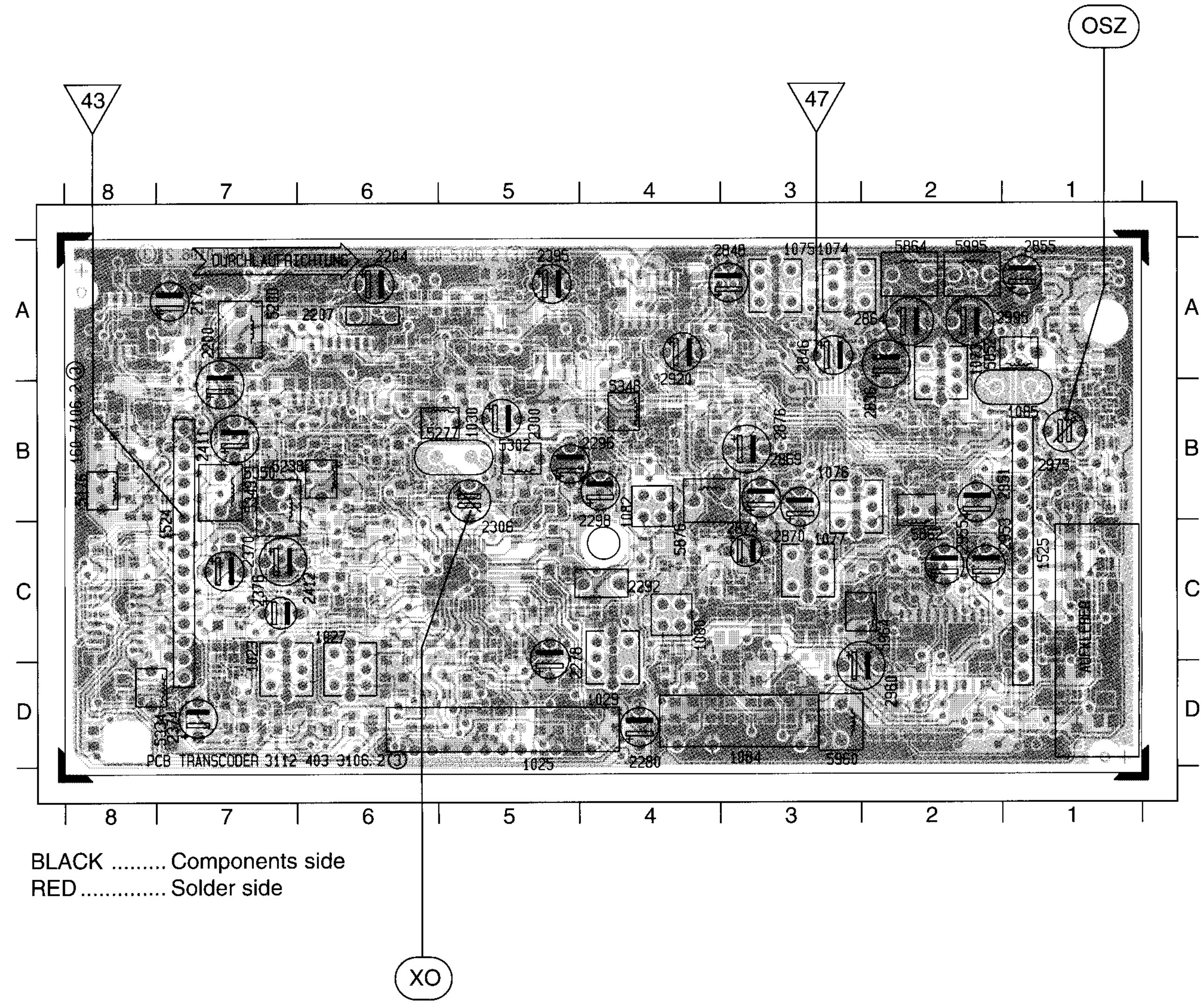
1052	F16
1054	G19
1056	G20
1058	I16
1060	E23
1524	B1
1525	E1
2480	C14
2484	D14
2486	E15
2487	E14
2488	E14
2489	F14
2490	F14
2494	F14
2500	G13
2501	G12
2502	G12
2503	H12
2504	H12
2505	H12
2507	G12
2508	J11
2518	H10
2522	G10
2524	F10
2525	F10
2526	F8
2530	E8
2532	F7
2533	F8
2537	E8
2540	D10
2542	D9
2543	D9
2545	E8
2550	D8
2552	C8
2560	D9
2561	C9
2562	C10
2564	C11
2566	C11
2572	B11
2576	C11
2580	C12
2590	C13
2591	C13
2592	B14
2594	D16
2606	F18
2610	F17
2612	F18
2613	E18
2614	E17
2615	E18
2624	E18
2654	D20
2662	E22
2666	C22
2680	F23
2682	H23
2690	F21
2692	F23
2700	C16
2706	C16
2708	B16
2712	B17
2713	B17
2714	B16
2716	D17
2717	D17
2718	D17
2720	H13
2721	J13
2722	J14
2723	J14
2724	J15
2725	H14
2726	H16
2727	H15
2730	J16
2758	J8
2760	J7
2762	J7
2764	I4
2766	I3
2767	I3
2768	H4
2769	I6
2770	H6
2771	I6
2772	H7
2774	H8
2792	B7
2796	B7
2800	A4
2806	C4
2810	H21
2812	H21
2814	H20
2816	I20
2818	I20
2820	I21
2822	I20
2823	E3
2824	E3
2825	E3
2826	E4
2827	F5
3480	D14
3482	D14
3484	D14
3486	E14
3487	E14
3488	E15
3490	F14
3500	I12
3502	H12
3503	H11
3504	H11
3506	H12
3507	G11
3508	H11
3509	H11
3512	H11
3513	G11
3514	H11
3515	H11
3516	H10
3518	H10
3520	G10
3521	G10
3522	G10
3526	F8
3532	F7
3534	E7
3536	E7
3540	E10
3542	D8
3543	D8
3545	D8
3548	D8
3550	D8
3552	C8
3554	C8
3558	C9
3560	D10
3562	C10
3564	C11
3566	B11
3568	A11
3570	A10
3572	A10
3574	A10
3576	C11
3580	C12
3582	C12
3585	A9
3586	A11
3588	A12
3590	C13
3592	C15
3594	E15
3596	D16
3598	E16
3600	E16
3602	F16
3604	F17
3606	F17
3608	F17
3610	F17
3612	E17
3614	E17
3616	E17
3618	D17
3620	D18
3622	D19
3624	E19
3626	E19
3628	E19
3630	E20
3633	D20
3634	F20
3636	F19
3637	F19
3638	F20
3640	G19
3642	G20
3643	G20
3644	H20
3650	D19
3652	C19
3654	C20
3656	D20
3658	C21
3660	C21
3662	D21
3664	C22
3666	D22
3668	D22
3670	E22
3672	E21
3674	E23
3675	E23
3678	H24
3680	G23
3681	I22
3682	H23
3683	H22
3684	G22
3685	G22
3686	G22
3688	G21
3690	F21
3692	F22
3700	C15
3702	D16
3704	D16
3706	C16
3708	B16
3710	B17
3712	B17
3714	B16
3716	D17
3720	J13
3722	J15
3723	I15
3724	H15
3726	H16
3728	I17
3730	J16
3732	J16
3734	I17
3736	I18
3738	J18
3740	J18
3742	J18
3746	J19
3749	J19
3750	G8
3752	H8
3754	I9
3756	J9
3757	I11
3758	J8
3760	J7
3762	J4
3765	J4
3766	H4
3768	H4
3770	H5
3772	H8
3774	C11
3780	H5
3782	H6
3790	B7
3791	B7
3792	B7
3794	B8
3795	B8
3796	B8
3800	A3
3802	A5
3806	C3
3807	E3
3808	E4
3809	E4
3810	F4
3811	D5
3812	G4
3813	F4
3814	G4
5550	D7
5552	C7
5758	I8
5760	I7
5769	I6
5771	I6
5774	H7
5782	G6
5798	B23
5800	G7
5802	G7
5803	E3
5804	E4
6660	D22
6664	D22
7508	J11
7518	H9
7520	D12
7530	F9
7546	E7
7552	D6
7562	B10
7564	B10
7566	B11
7570	D7
7585	A9
7588	A12
7598	D16
7606	F18
7608	G17
7612	E17
7615	F19
7618	E18
7622	D19
7628	E19
7630	E20
7632	D20
7634	E20
7636	F20
7654	C20
7656	E21
7662	E21
7664	D22
7670	E22
7672	E21
7674	D22
7678	H24
7680	I22
7684	G22
7686	F22
7688	F22
7689	G20
7690	G20
7700	C17
7702	D16
7713	D18
7715	D18
7717	C19
7722	I15
7725	I14
7728	I16
7734	J17
7738	J18
7742	I18
7744	I19
7762	J5
7764	I4
7766	I3
7768	I4
7770	H5
7782	H6
7800	B4
7806	C4
7807	E5
7808	E5
7809	F5
7810	H21
7811	F5

	For sets with
A	SECAM L

SECAM/PAL Transcoder Board

Conventional Assembly

View of components side

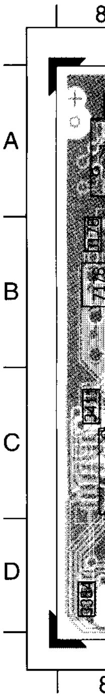

43
47
OSZ
XO
8
7
6
5
4
3
2
1
A
B
C
D
DURCHLAUFRICHTUNG
PCB TRANSCODER 3112 403 3106.2
1524
1525
2204
2207
2395
2848
1075
1074
5864
5995
2855
2864
2995
2846
2836
2920
5348
1073
5852
1085
2975
2951
5277
1030
5302
2300
2296
2298
2306
2876
2869
1076
1082
5876
2874
2870
1077
5862
2955
2953
2292
1080
2278
1029
2280
1025
1084
5960
2960
5964
2200
2411
5350
2370
2412
2376
1023
1027
5334
5176
5200
5238
5349
2172
2374

BLACK .... Components side
RED .... Solder side

1023	D 7	1075	A 3	1524	C 7	2280	D 4	2374	D 7	2848	A 3	2920	A 4	5176	B 8	5349	B 7	5964	C 3
1025	D 5	1076	C 3	1525	C 1	2292	C 4	2376	C 7	2855	A 1	2951	B 2	5200	A 7	5350	C 7	5995	A 2
1027	D 6	1077	C 3	2172	A 7	2296	B 5	2395	A 5	2864	A 2	2953	C 2	5238	B 6	5852	A 1		
1029	D 4	1080	C 4	2200	B 7	2298	B 4	2411	B 7	2869	B 3	2955	C 2	5277	B 5	5862	C 2		
1030	B 5	1082	C 4	2204	A 6	2300	B 5	2412	C 7	2870	C 3	2960	D 3	5302	B 5	5864	A 2		
1073	B 2	1084	D 3	2207	A 6	2306	B 5	2836	A 2	2874	C 3	2975	B 1	5334	D 8	5876	B 4		
1074	A 3	1085	B 1	2278	D 5	2370	C 7	2846	A 3	2876	B 3	2995	A 2	5348	B 4	5960	D 3		

SMD Asse

View of com

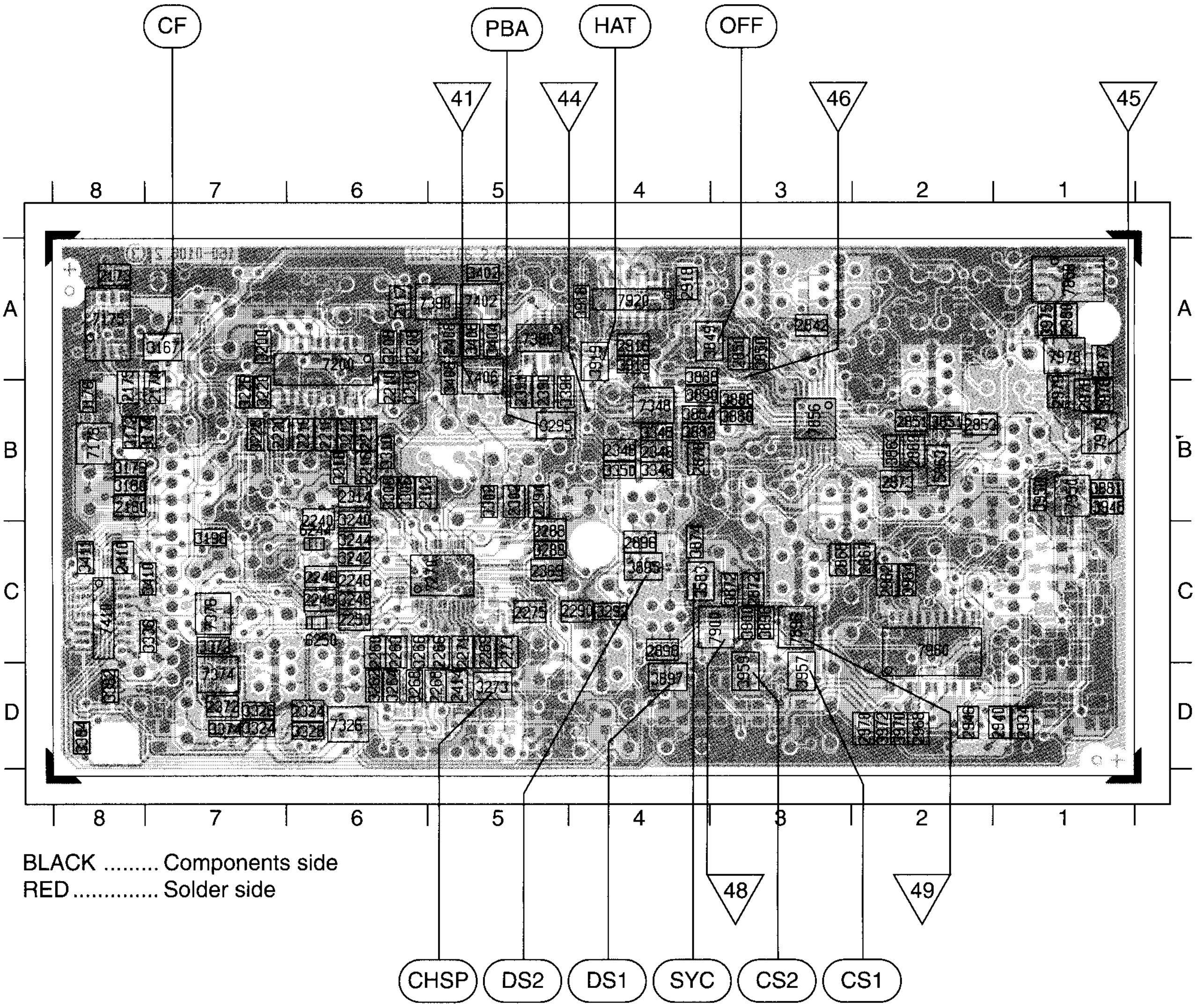


BLACK
RED.....

2117	A 6
2173	A 8
2174	B 7
2175	B 8
2180	B 8
2208	A 6
2210	B 6
2212	B 6
2216	B 6
2218	B 6
2219	B 6
2220	B 7
2240	C 6
2246	C 6
2248	C 6
2249	C 6
2250	C 6

SMD Assembly

View of components side

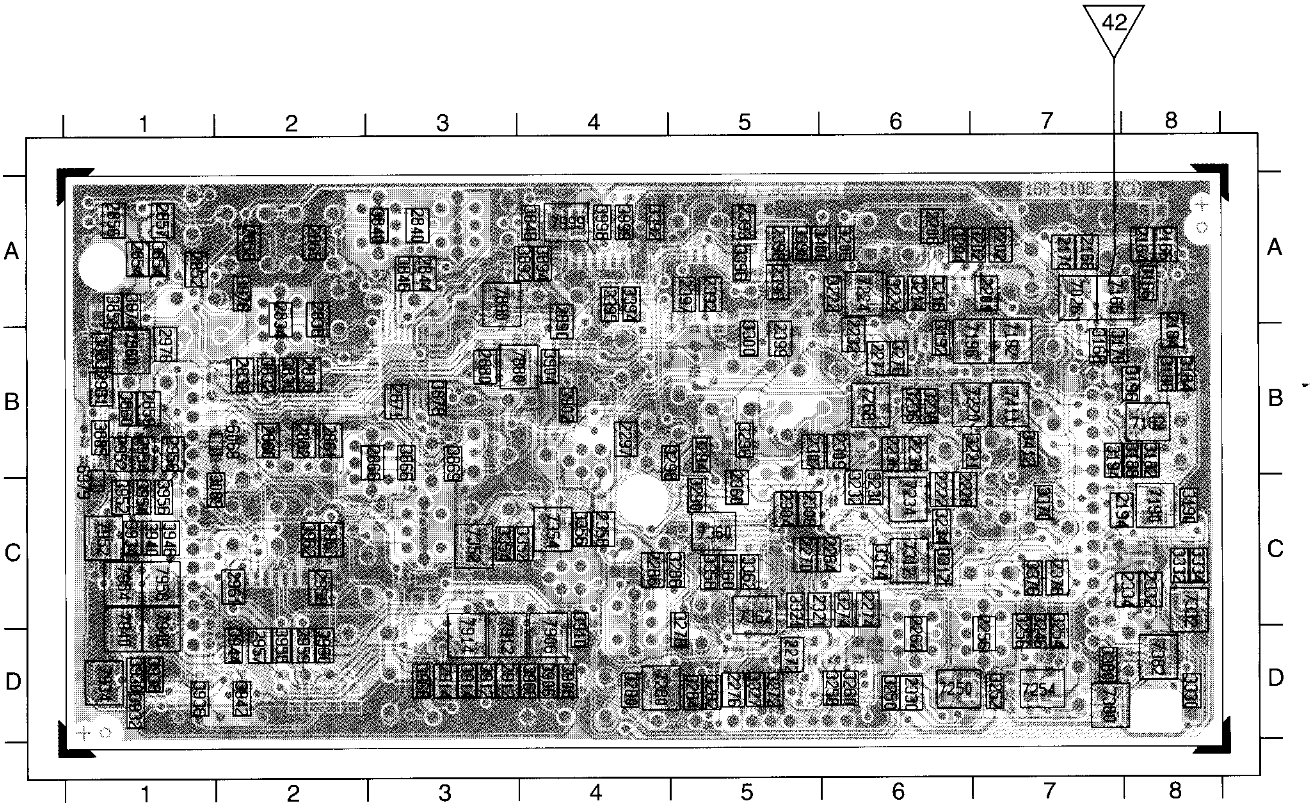


BLACK .... Components side
RED .... Solder side

2117	A 6	2260	D 6	2348	B 4	2896	C 4	3176	B 8	3264	D 6	3350	B 4	3872	C 3	3950	B 1	7374	D 7
2173	A 8	2263	D 6	2369	C 5	2898	D 4	3178	B 8	3266	D 6	3372	C 7	3874	C 4	3957	D 3	7376	C 7
2174	B 7	2266	D 5	2372	D 7	2916	A 4	3180	B 8	3268	D 6	3374	D 7	3880	B 3	3959	D 3	7390	A 5
2175	B 8	2268	D 5	2390	B 5	2918	A 4	3198	C 7	3273	D 5	3382	D 8	3881	B 1	3964	C 2	7398	A 5
2180	B 8	2269	D 5	2391	B 5	2934	D 1	3200	A 7	3288	C 5	3384	D 8	3882	B 4	3970	D 2	7402	A 5
2208	A 6	2271	D 5	2408	A 5	2940	D 1	3208	A 6	3292	C 4	3390	B 5	3884	B 4	3972	D 2	7406	B 5
2210	B 6	2272	D 5	2410	C 8	2946	D 2	3210	B 6	3295	B 5	3402	A 5	3886	B 3	3975	A 1	7410	C 8
2212	B 6	2273	D 5	2842	A 3	2962	C 2	3212	B 6	3302	B 5	3404	A 5	3888	B 4	3978	B 1	7856	B 3
2216	B 6	2275	C 5	2850	A 3	2968	D 2	3218	B 6	3306	B 6	3406	A 5	3890	B 4	5863	B 2	7858	A 1
2218	B 6	2288	C 5	2851	B 2	2970	D 2	3220	B 7	3308	B 6	3408	B 5	3895	C 4	6244	C 6	7896	C 3
2219	B 6	2290	C 4	2853	B 2	2977	A 1	3226	B 7	3310	B 6	3410	C 7	3896	C 3	6250	C 6	7900	C 3
2220	B 7	2294	B 5	2863	B 2	2978	B 1	3228	B 7	3324	D 7	3411	C 8	3897	D 4	7175	A 8	7920	A 4
2240	C 6	2302	B 5	2867	C 2	2979	B 1	3240	C 6	3326	D 7	3583	C 4	3900	C 3	7176	B 8	7950	B 1
2246	C 6	2312	B 6	2868	C 3	2980	A 1	3242	C 6	3328	D 6	3849	A 4	3916	A 4	7200	B 6	7960	D 2
2248	C 6	2314	B 6	2872	C 3	3167	A 7	3244	C 6	3336	C 7	3850	A 3	3918	A 4	7270	C 5	7978	A 1
2249	C 6	2324	D 6	2873	B 2	3172	B 8	3248	C 6	3346	B 4	3851	B 2	3919	A 4	7326	D 6	7979	B 1
2250	C 6	2346	B 4	2878	B 4	3174	B 7	3262	D 6	3348	B 4	3863	B 2	3948	B 1	7348	B 4		

SMD Assembly

View of solder side

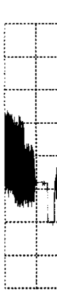


BLACK .... Solder side
RED .... Components side

2164	A 8	2297	B 4	2840	A 3	2958	C 2	3216	A 6	3284	D 5	3380	D 7	3894	A 4	3962	C 2	7312	C 6
2166	A 8	2304	C 5	2844	A 3	2959	D 2	3221	B 6	3286	C 5	3392	A 4	3902	B 4	3966	D 4	7332	D 8
2168	A 7	2307	B 5	2852	A 1	2961	C 2	3222	A 6	3290	C 5	3394	A 4	3904	B 4	3968	D 3	7352	C 3
2170	A 7	2308	C 5	2854	A 1	2963	C 2	3224	A 6	3294	B 5	3395	A 4	3906	D 4	3974	A 1	7354	C 4
2184	B 8	2309	B 6	2856	A 1	2976	B 1	3230	C 6	3296	B 5	3396	A 5	3908	D 4	3976	A 2	7360	C 5
2194	C 7	2321	C 5	2857	A 1	2981	B 1	3232	C 6	3298	C 5	3398	A 5	3910	D 4	3998	A 4	7362	D 5
2201	A 7	2330	D 6	2858	A 2	3069	C 2	3234	C 6	3300	B 5	3400	A 6	3912	D 3	3999	A 4	7380	D 7
2202	A 7	2332	C 8	2859	B 1	3166	A 8	3236	B 6	3312	C 6	3412	B 7	3914	D 3	6069	B 2	7382	D 8
2206	A 6	2334	C 8	2860	B 2	3168	B 7	3238	B 6	3314	C 6	3830	B 2	3930	D 1	6979	C 1	7411	B 7
2222	C 6	2358	C 4	2861	B 2	3170	B 7	3246	D 7	3321	C 5	3832	B 2	3932	D 1	7026	A 7	7860	B 1
2228	C 6	2360	C 5	2862	B 2	3182	C 8	3250	D 6	3327	D 5	3840	A 3	3934	C 1	7166	A 7	7880	B 4
2232	B 6	2378	C 7	2865	A 2	3184	B 8	3252	D 7	3330	D 8	3846	A 3	3936	D 1	7182	B 8	7890	A 3
2236	B 6	2392	A 5	2866	C 3	3186	B 8	3254	D 7	3332	C 8	3848	A 4	3938	D 1	7190	C 8	7906	D 4
2238	B 6	2393	A 5	2871	B 3	3188	C 8	3256	D 7	3334	C 8	3854	A 1	3940	C 1	7192	B 7	7912	D 3
2256	D 7	2396	A 5	2880	B 3	3190	C 8	3258	D 6	3352	C 4	3859	A 1	3942	D 2	7196	B 7	7914	D 3
2262	D 6	2397	A 5	2890	B 4	3192	B 6	3260	D 6	3354	C 3	3860	B 1	3944	D 2	7220	B 6	7934	D 1
2264	C 6	2398	A 5	2912	D 3	3194	C 7	3272	D 5	3356	C 4	3866	C 3	3946	C 1	7224	A 6	7940	D 1
2270	C 5	2399	B 5	2914	D 3	3196	B 8	3274	C 6	3358	C 5	3869	C 3	3952	C 1	7234	C 6	7946	D 1
2274	C 6	2830	B 2	2952	B 1	3202	A 7	3276	B 6	3360	C 5	3878	B 3	3954	C 1	7250	D 6	7952	C 1
2276	D 5	2832	B 2	2954	B 1	3204	A 6	3278	D 5	3362	C 5	3883	B 1	3956	C 1	7254	D 7	7954	C 1
2277	B 6	2834	B 2	2956	B 1	3206	A 6	3280	D 4	3370	C 7	3885	B 1	3958	D 2	7268	B 6	7956	C 1
2286	C 4	2838	B 2	2957	D 2	3214	A 6	3282	D 5	3376	C 7	3892	A 4	3960	D 2	7280	D 4	7999	A 4

A: AC,
Conne

A: AC,
Conne

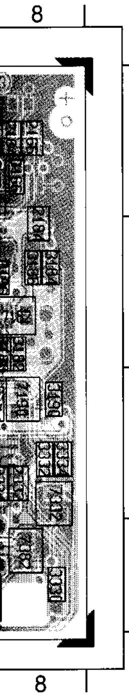


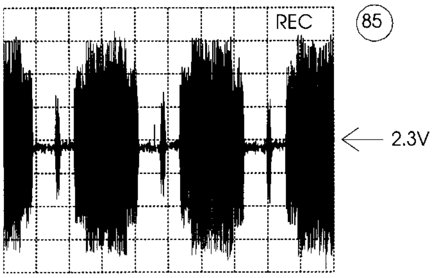
A: AC,
Conne

A: AC
Conne

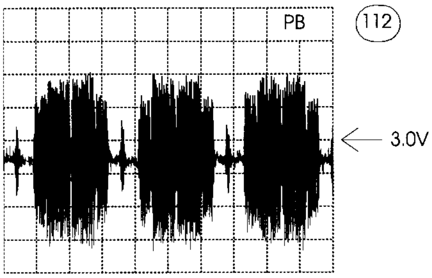
A: AC
Conne

7

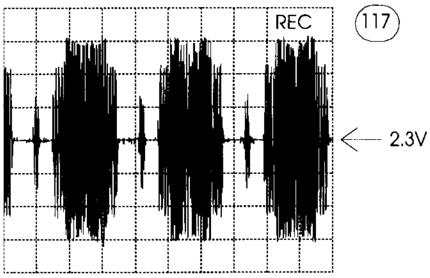




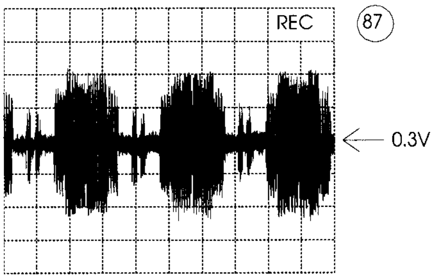
A: AC, 100mV/Div, 20us/Div
Connector 1524 Pin 2



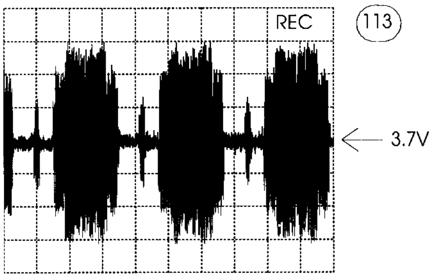
A: AC, 50mV/Div, 20us/Div
IC 7270 Pin 17



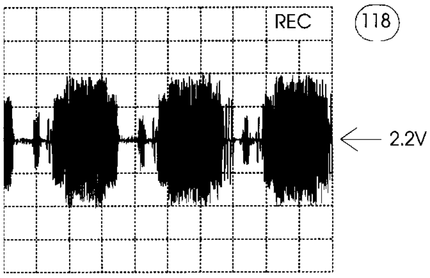
A: AC, 200mV/Div, 20us/Div
IC 7270 Pin 42



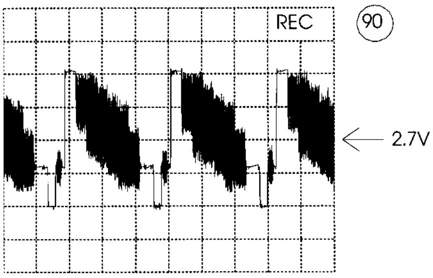
A: AC, 50mV/Div, 20us/Div
Connector 1530 Pin 2



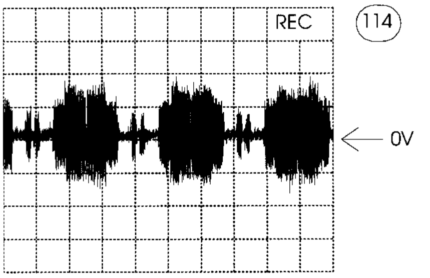
A: AC, 50mV/Div, 20us/Div
IC 7270 Pin 7



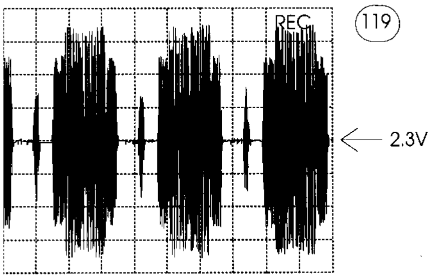
A: AC, 200mV/Div, 20us/Div
IC 7200 Pin 14



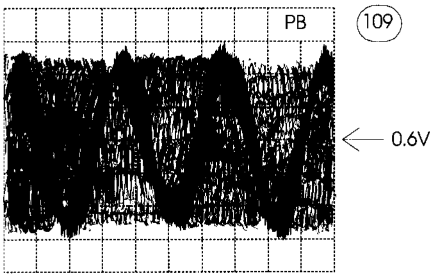
A: AC, 500mV/Div, 20us/Div
Connector 1526 Pin 9



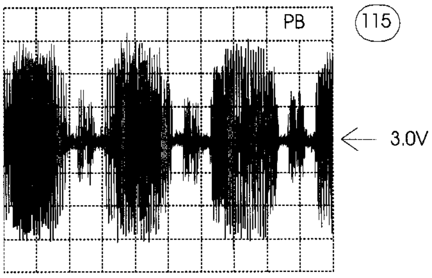
A: DC, 50mV/Div, 20us/Div
C 2273



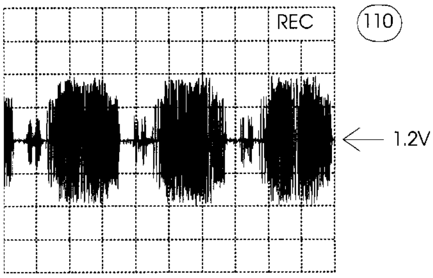
A: AC, 200mV/Div, 20us/Div
IC 7200 Pin 11



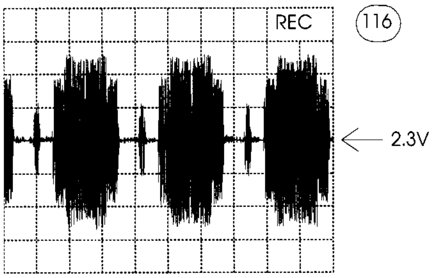
A: AC, 50mV/Div, 500us/Div
Connector 1525 Pin 15



A: AC, 50mV/Div, 20us/Div
IC 7270 Pin 15



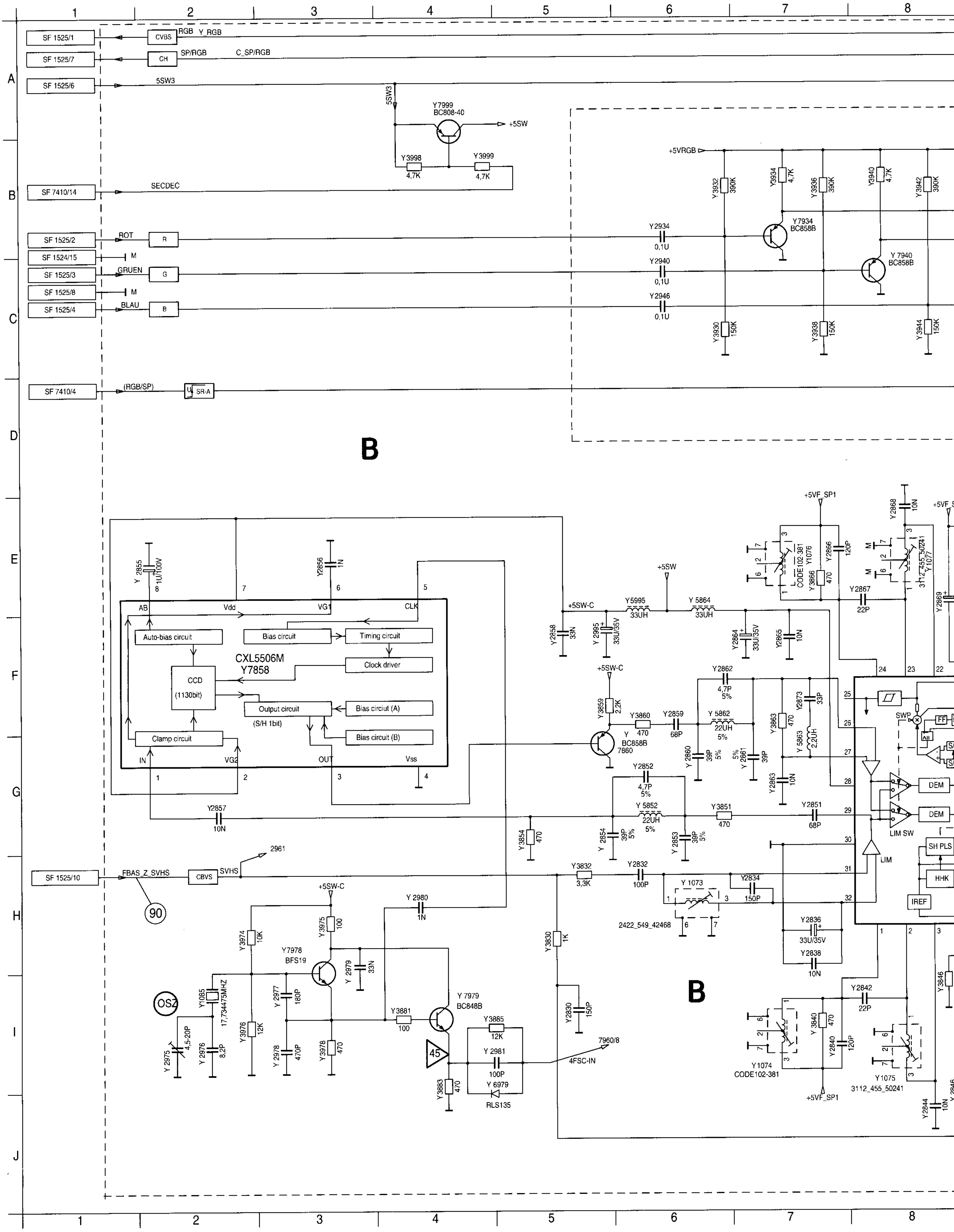
A: AC, 200mV/Div, 20us/Div
Connector 1525 Pin 14

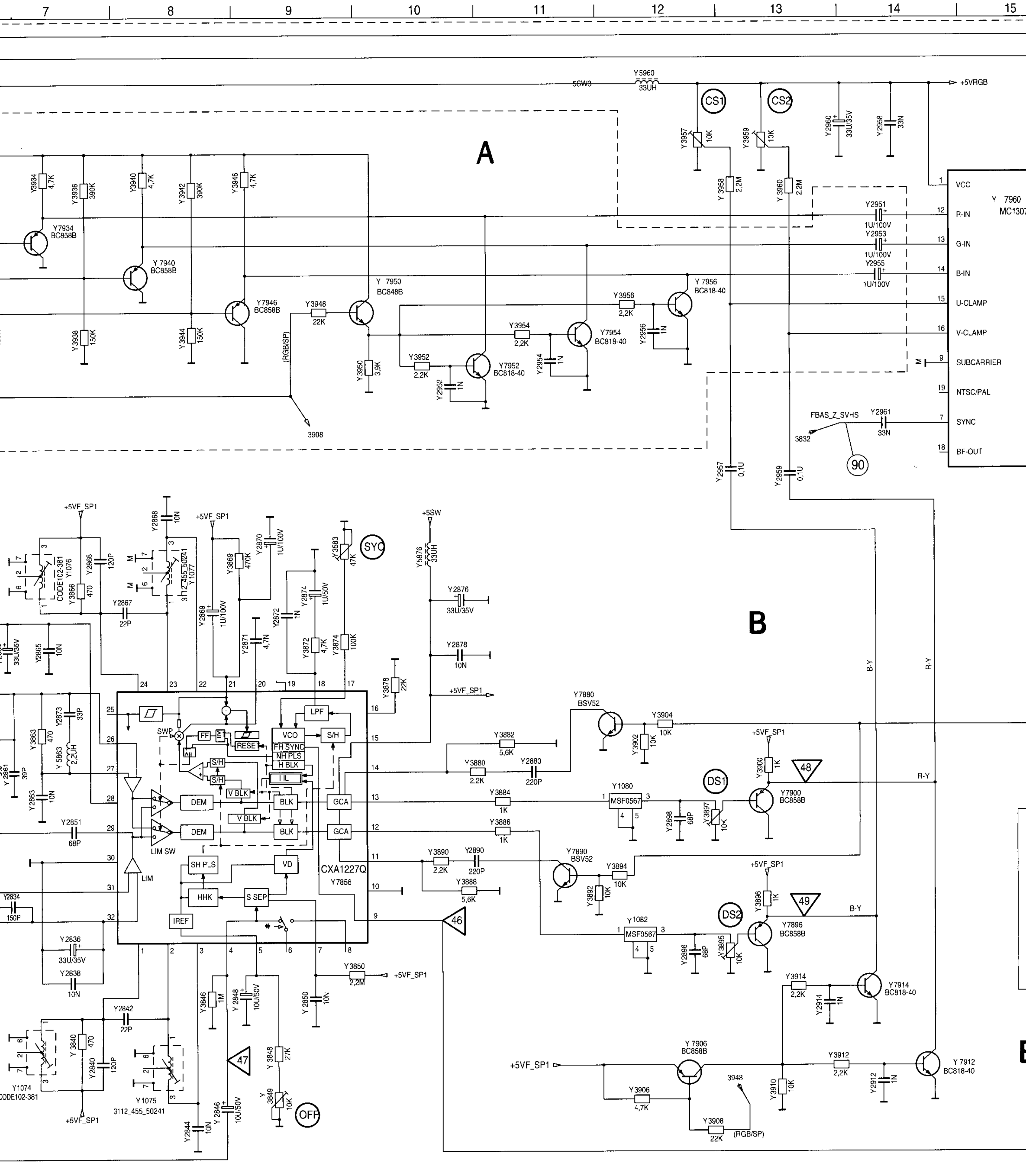


A: AC, 200mV/Div, 20us/Div
IC 7270 Pin 47

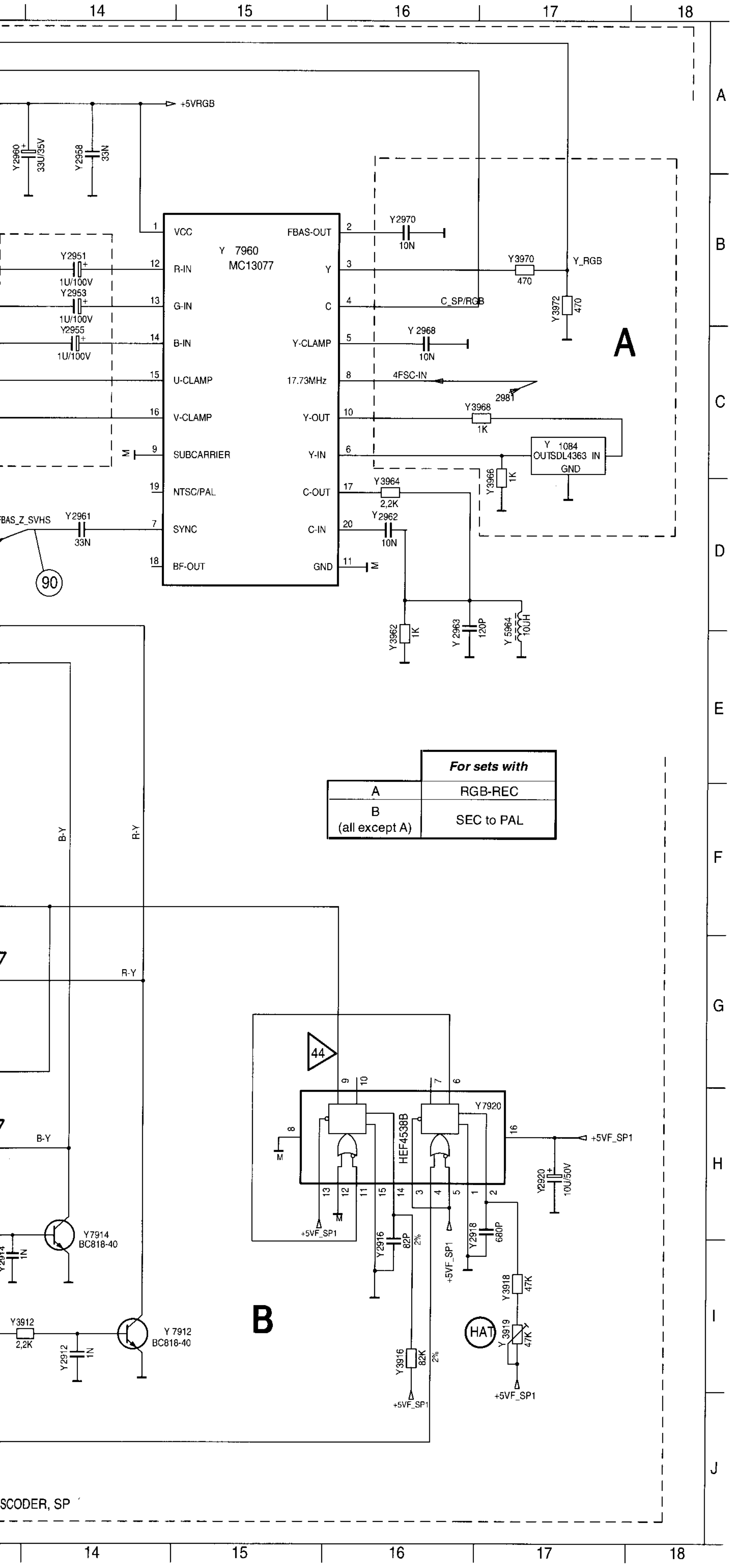
C 2	7312	C 6
D 4	7332	D 8
D 3	7352	C 3
A 1	7354	C 4
A 2	7360	C 5
A 4	7362	D 5
A 4	7380	D 7
B 2	7382	D 8
C 1	7411	B 7
A 7	7860	B 1
A 7	7880	B 4
B 8	7890	A 3
C 8	7906	D 4
B 7	7912	D 3
B 7	7914	D 3
B 6	7934	D 1
A 6	7940	D 1
C 6	7946	D 1
D 6	7952	C 1
D 7	7954	C 1
B 6	7956	C 1
D 4	7999	A 4

SECAM/PAL Transcoder Board - Transcoder Part (SP)


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
SF 1525/1
CVBS
RGB Y_RGB
SF 1525/7
CH
SP/RGB
C_SP/RGB
SF 1525/6
5SW3
Y7999
BC808-40
+5SW
Y3998
4,7K
Y3999
4,7K
SF 7410/14
SECDEC
+5VRGB
Y3932
390K
Y3934
4,7K
Y3936
390K
Y3940
4,7K
Y3942
390K
Y7934
BC858B
Y 7940
BC858B
SF 1525/2
ROT
R
SF 1524/15
M
SF 1525/3
GRUEN
G
SF 1525/8
M
SF 1525/4
BLAU
B
Y2934
0,1U
Y2940
0,1U
Y2946
0,1U
Y3930
150K
Y3938
150K
Y3944
150K
SF 7410/4
(RGB/SP)
SR-A
B
Y 2855
1U/100V
Y2856
1N
AB
Vdd
VG1
CLK
Auto-bias circuit
Bias circuit
Timing circuit
CXL5506M
Y7858
Clock driver
CCD
(1130bit)
Output circuit
(S/H 1bit)
Bias circuit (A)
Bias circuit (B)
Clamp circuit
IN
VG2
OUT
Vss
Y2857
10N
+5SW-C
Y5995
33UH
+5SW
Y 5864
33UH
Y2858
33N
Y 2995
33U/35V
Y2864
33U/35V
Y2865
10N
+5VF_SP1
Y1076
CODE102-381
Y3866
470
Y2866
120P
Y2868
10N
3112_455_50241
Y1077
Y2867
22P
Y2869
Y3859
2,2K
Y3860
470
Y2859
68P
Y 5862
22UH
5%
Y2862
4,7P
5%
Y2873
33P
Y3863
470
Y 5863
2,2UH
Y
BC858B
7860
Y 2860
39P
5%
Y 2861
39P
5%
Y2863
10N
Y2852
4,7P
5%
Y 5852
22UH
5%
Y3851
470
Y2851
68P
Y3854
470
Y 2854
39P
5%
Y 2853
39P
5%
SWP
FF
DEM
DEM
LIM SW
LIM
SH PLS
HHK
IREF
SF 1525/10
FBAS_Z_SVHS
90
CBVS
SVHS
2961
Y3832
3,3K
Y2832
100P
Y 1073
Y2834
150P
2422_549_42468
Y2836
33U/35V
Y2838
10N
+5SW-C
Y 2980
1N
Y3975
100
Y3974
10K
Y7978
BFS19
Y 2979
33N
Y3830
1K
B
Y1085
17,734475MHZ
OSZ
Y 2975
4,5-20P
Y 2976
8,2P
Y3976
12K
Y 2977
180P
Y 2978
470P
Y3978
470
Y3881
100
Y 7979
BC848B
Y3885
12K
Y 2981
100P
Y 6979
RLS135
7960/8
4FSC-IN
45
Y3883
470
Y2830
150P
Y2842
22P
Y3840
470
Y2840
120P
Y1074
CODE102-381
+5VF_SP1
Y1075
3112_455_50241
Y3846
Y2844
10N

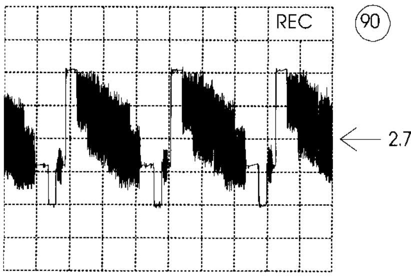

7
8
9
10
11
12
13
14
15
Y5960
33UH
5CW3
+5VRGB
CS1
CS2
Y3957 10K
Y3959 10K
Y2960 33U/35V
Y2958 33N
A
Y3934 4,7K
Y3936 390K
Y3940 4,7K
Y3942 390K
Y3946 4,7K
Y 3958 2,2M
Y 3960 2,2M
VCC
Y 7960
MC1307
Y2951 1U/100V
R-IN
Y2953 1U/100V
G-IN
Y2955 1U/100V
B-IN
U-CLAMP
V-CLAMP
SUBCARRIER
NTSC/PAL
SYNC
BF-OUT
Y7934 BC858B
Y 7940 BC858B
Y7946 BC858B
Y 7950 BC848B
Y 7956 BC818-40
Y3956 2,2K
Y3948 22K
Y3954 2,2K
Y7954 BC818-40
Y2956 1N
Y3938 150K
Y3944 150K
(RGB/SP)
Y3950 3,9K
Y3952 2,2K
Y7952 BC818-40
Y2952 1N
Y2954 1N
3908
FBAS_Z_SVHS
Y2961 33N
3832
90
Y2957 0,1U
Y2959 0,1U
+5VF_SP1
Y2868 10N
CODE102-381 Y1076
Y2866 120P
Y3866 470
3112_455_50241 Y1077
Y2867 22P
Y2869 1U/100V
Y3869 470K
Y2870 1U/100V
Y2871 4,7N
Y2872 1N
Y2874 1U/50V
Y3583 47K
SYC
+5SW
Y5876 33UH
Y2876 33U/35V
Y2878 10N
B
Y3872 4,7K
Y3874 100K
Y3878 22K
+5VF_SP1
33U/35V
Y2865 10N
Y3863 470
Y2873 33P
Y 5863 2,2UH
Y2861 39P
Y2863 10N
Y2851 68P
Y2834 150P
Y2836 33U/35V
Y2838 10N
CXA1227Q
Y7856
SWP
FF
RESET
VCO
FH SYNC
NH PLS
H BLK
I IL
S/H
LPF
V BLK
BLK
DEM
LIM SW
LIM
GCA
SH PLS
VD
HHK
S SEP
IREF
Y7880 BSV52
Y3904 10K
Y3902 10K
Y3882 5,6K
Y3880 2,2K
Y2880 220P
+5VF_SP1
Y3900 1K
48
R-Y
DS1
Y1080 MSF0567
Y3884 1K
Y2898 68P
Y3897 10K
Y7900 BC858B
Y3886 1K
Y7890 BSV52
Y3890 2,2K
Y2890 220P
Y3894 10K
Y3888 5,6K
Y3892 10K
Y3896 1K
49
B-Y
DS2
Y1082 MSF0567
Y2896 68P
Y3895 10K
Y7896 BC858B
46
Y3850 2,2M
Y3846 1M
Y2848 10U/50V
Y2850 10N
Y3914 2,2K
Y2914 1N
Y7914 BC818-40
Y2842 22P
Y 3840 470
Y2840 120P
Y1074 CODE102-381
Y1075 3112_455_50241
47
Y 3848 27K
Y 3849 10K
OFF
Y2844 10N
Y 2846 10U/50V
+5VF_SP1
Y 7906 BC858B
3948
Y3906 4,7K
Y3908 22K
(RGB/SP)
Y3910 10K
Y3912 2,2K
Y2912 1N
Y 7912 BC818-40

PCB SECAM/PAL TRANSCODER, SP


14
15
16
17
18
A
B
C
D
E
F
G
H
I
J
+5VRGB
Y2960
33U/35V
Y2958
33N
Y2951
1U/100V
Y2953
1U/100V
Y2955
1U/100V
1
VCC
12
R-IN
13
G-IN
14
B-IN
15
U-CLAMP
16
V-CLAMP
9
SUBCARRIER
19
NTSC/PAL
7
SYNC
18
BF-OUT
Y 7960
MC13077
FBAS-OUT
2
Y
3
C
4
Y-CLAMP
5
17.73MHz
8
Y-OUT
10
Y-IN
6
C-OUT
17
C-IN
20
GND
11
M
Y2970
10N
Y3970
470
Y_RGB
Y3972
470
C_SP/RGB
Y 2968
10N
4FSC-IN
2981
Y3968
1K
Y 1084
OUT SDL4363 IN
GND
Y3966
1K
Y3964
2,2K
Y2962
10N
Y3962
1K
Y 2963
120P
Y 5964
10UH
A
FBAS_Z_SVHS
Y2961
33N
90
B-Y
R-Y
R-Y
B-Y
44
Y7920
HEF4538B
+5VF_SP1
Y2920
10U/50V
Y2916
82P
2%
+5VF_SP1
Y2918
680P
Y3918
47K
HAT
Y 3919
47K
+5VF_SP1
Y3916
82K
2%
+5VF_SP1
+5VF_SP1
Y7914
BC818-40
Y2914
1N
Y3912
2,2K
Y2912
1N
Y 7912
BC818-40
B
SCODER, SP

	For sets with
A	RGB-REC
B (all except A)	SEC to PAL

1073	H6
1074	I7
1075	I8
1076	E7
1077	E8
1080	G12
1082	H12
1084	C17
1085	I2
2830	I5
2832	H6
2834	H7
2836	H7
2838	H7
2840	I7
2842	I8
2844	J8
2846	I8
2848	I9
2850	I9
2851	G7
2852	G6
2853	G6
2854	G5
2855	E1
2856	E3
2857	G2
2858	F5
2859	F6
2860	G6
2861	G7
2862	F6
2863	G7
2864	F7
2865	F7
2866	E7
2867	E8
2868	E8
2869	E8
2870	E9
2871	F9
2872	E9
2873	F7
2874	E9
2876	E10
2878	F10
2880	G11
2890	G11
2896	H12
2898	G12
2912	I14
2914	I13
2916	I16
2918	H17
2920	H17
2934	B6
2940	C6
2946	C6
2951	B14
2952	D10
2953	B14
2954	C11
2955	C14
2956	C12
2957	D13
2958	A14
2959	D13
2960	A13
2961	D14
2962	D16
2963	D16
2968	C16
2970	B16
2975	I2
2976	I2
2977	I3
2978	I3
2979	H3
2980	H4
2981	I5
2995	F5
3583	E9
3830	H5
3832	H5
3840	I7
3846	I8
3848	I9
3849	I9
3850	H10
3851	G6
3854	G5
3859	F5
3860	F6
3863	F7
3866	E7
3869	E8
3872	F9
3874	F9
3878	F10
3880	G11
3881	I4
3882	F11
3883	I4
3884	G11
3885	I5
3886	G11
3888	H10
3890	G10
3892	H11
3894	G12
3895	H13
3896	H13
3897	G12
3900	G13
3902	F12
3904	F12
3906	I12
3908	J12
3910	I13
3912	I14
3914	H13
3916	I16
3918	I17
3919	I17
3930	C6
3932	B6
3934	B7
3936	B7
3938	C7
3940	B8
3942	B8
3944	C8
3946	B9
3948	C9
3950	C10
3952	C10
3954	C11
3956	C12
3957	A12
3958	B13
3959	A13
3960	B13
3962	E16
3964	D16
3966	D17
3968	C17
3970	B17
3972	B17
3974	H2
3975	H3
3976	I2
3978	I3
3998	B4
3999	B4
5852	G6
5862	F6
5863	G7
5864	E6
5876	E10
5960	A12
5964	D17
5995	E6
6979	I5
7856	H9
7858	F3
7860	G6
7880	F11
7890	G11
7896	H13
7900	G13
7906	I12
7912	I15
7914	H14
7920	H17
7934	B7
7940	C8
7946	C9
7950	C10
7952	C11
7954	C12
7956	C12
7960	B15
7978	H3
7979	I4
7999	A4



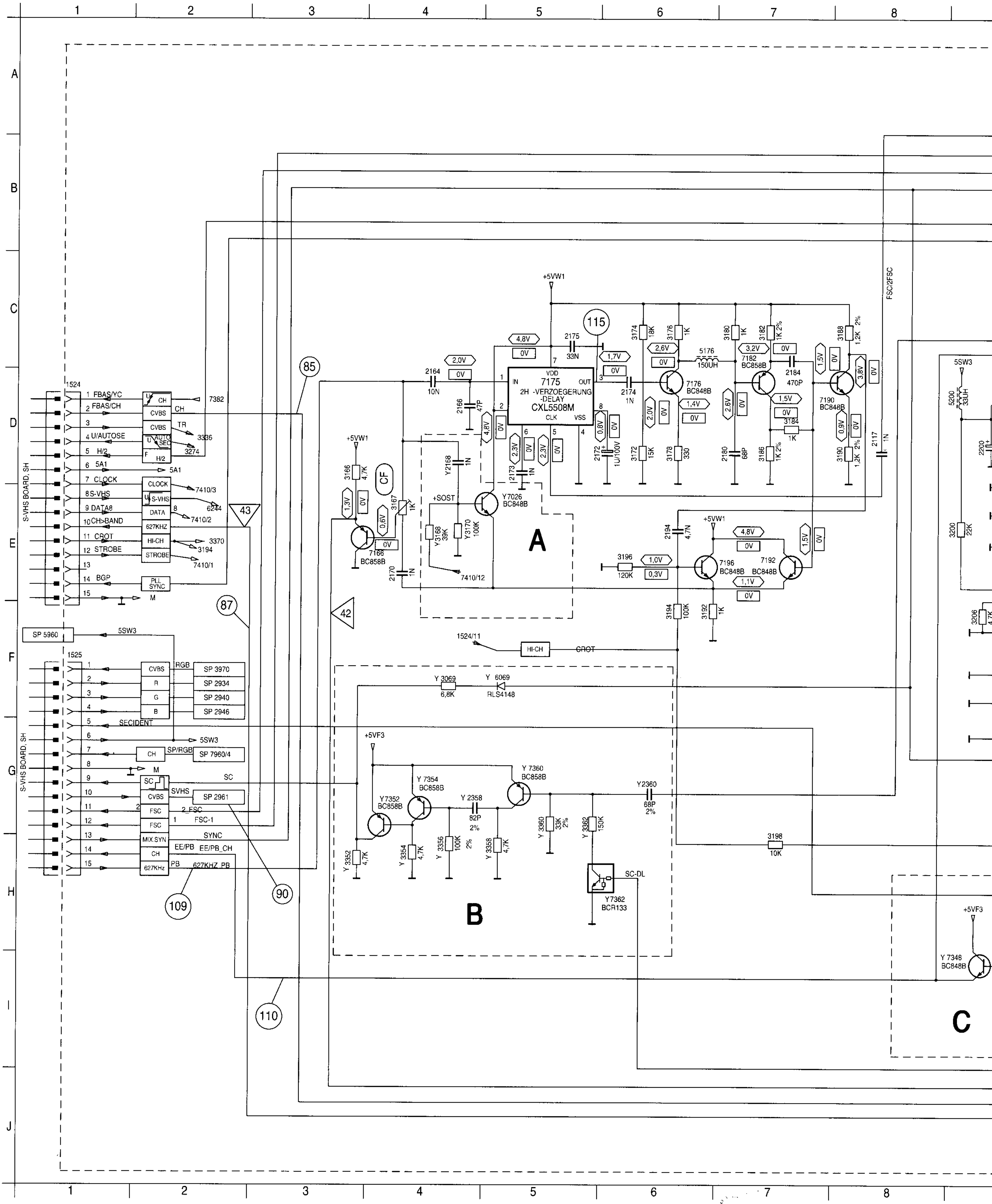
A: AC, 500mV/Div, 20us/Div
Connector 1526 Pin 9

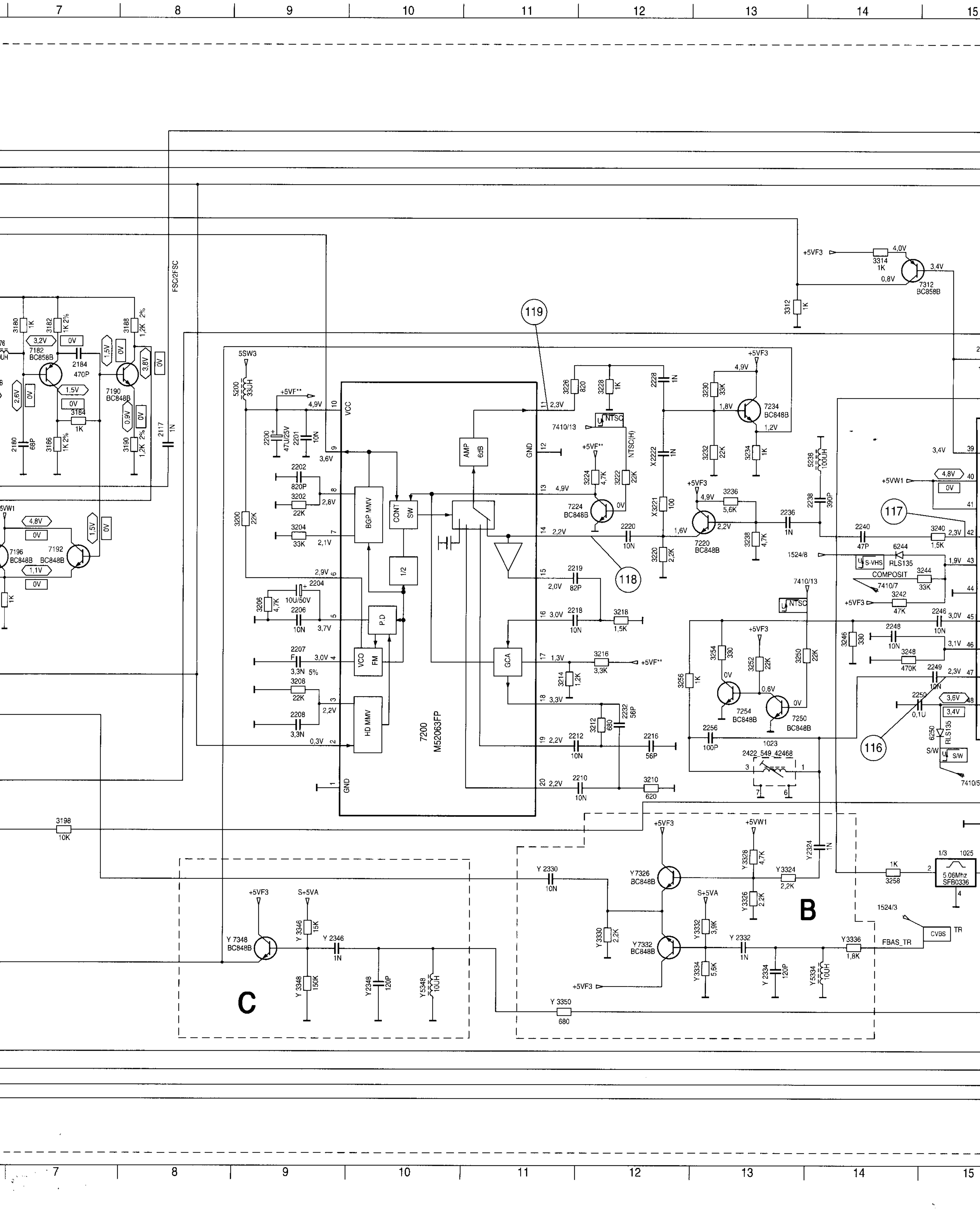
Interconnections:

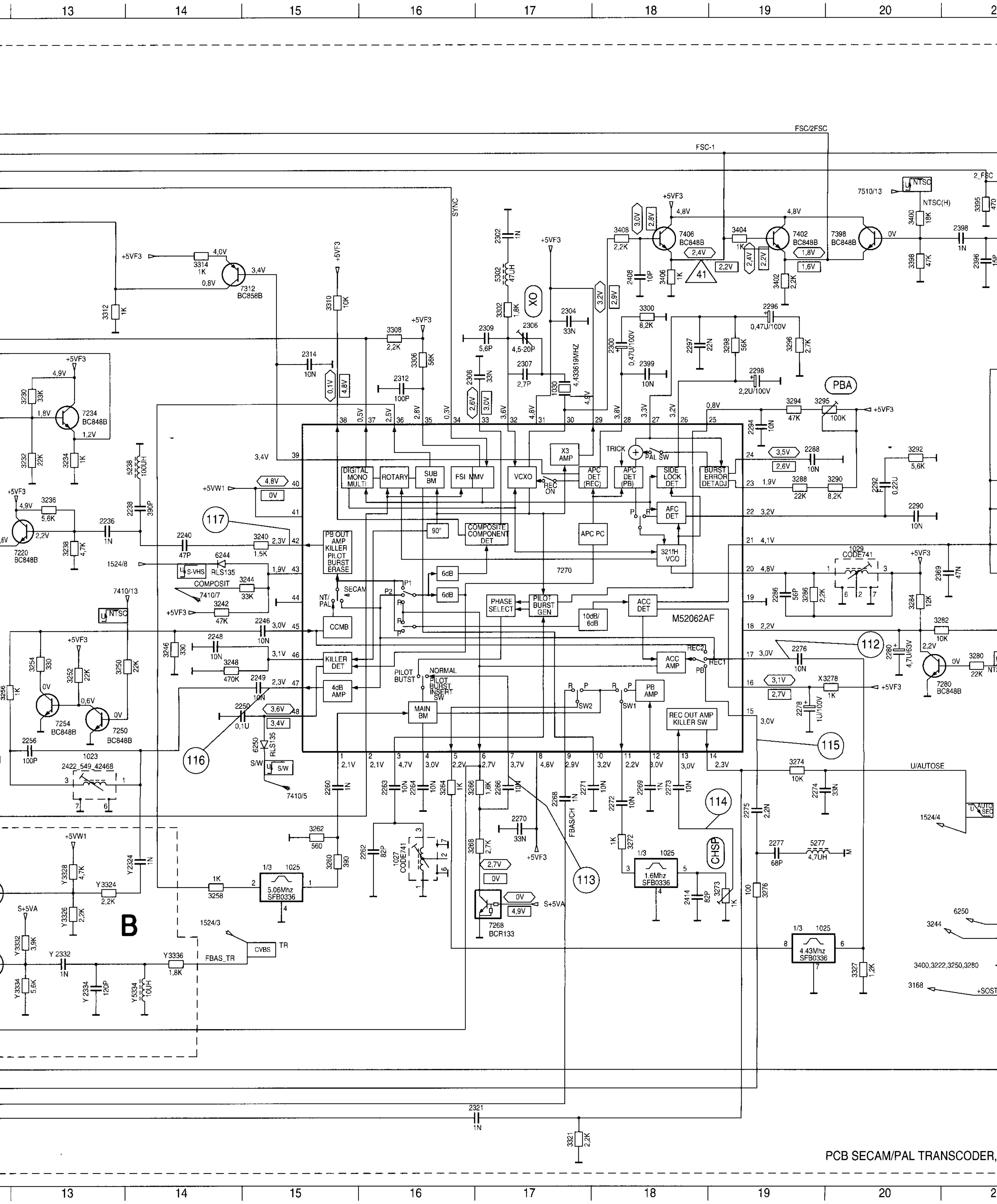
PS page 3-27
FE page 3-29/31
TM page 3-34
SE page 3-35
HC page 3-36
VS page 3-37
DE page 3-38
OS page 3-39
CC page 3-40
VP page 3-41
IO page 3-44
AU page 3-45
VT page 3-46
CF page 3-50
SH page 3-51
SF page 3-53
SP page 3-54
DC page 3-57...

Note on the components:
"X" components are not used
"Y" components are optional

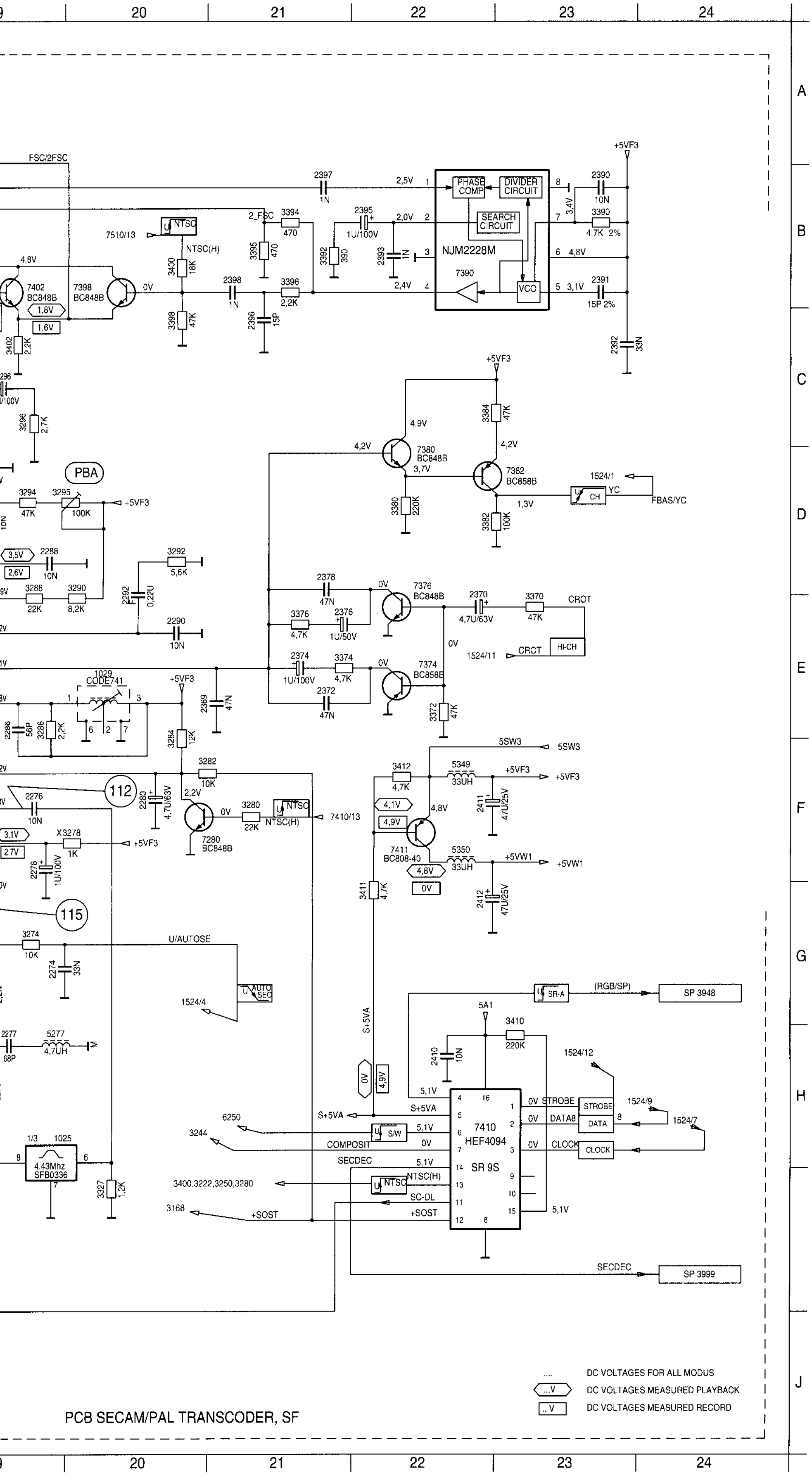
SECAM/PAL Transcoder Board - Chrominance Processing (SF)


1 2 3 4 5 6 7 8
A B C D E F G H I J
1524
1 FBAS/YC
2 FBAS/CH
3
4 U/AUTOSE
5 H/2
6 5A1
7 CLOCK
8 S-VHS
9 DATA8
10 CH>BAND
11 CROT
12 STROBE
13
14 BGP
15
S-VHS BOARD, SH
CH
CVBS
AUTO SEC
H/2
CLOCK
S-VHS
DATA
627KHZ
HI-CH
STROBE
PLL SYNC
M
7382
3336
3274
5A1
7410/3
6244
7410/2
3370
3194
7410/1
43
85
87
42
SP 5960
5SW3
1525
CVBS
R
G
B
RGB
SP 3970
SP 2934
SP 2940
SP 2946
SECIDENT
5SW3
SP/RGB
SP 7960/4
SC
SVHS
SP 2961
FSC
2_FSC
FSC-1
MIX.SYN
SYNC
EE/PB
EE/PB_CH
627KHz
PB
627KHZ_PB
109
90
110
+5VW1
115
7175
VDD
IN
OUT
2H -VERZOEGERUNG -DELAY
CXL5508M
CLK
VSS
2175
33N
2164
10N
2166
47P
2174
1N
2172
1U/100V
4,8V
0V
2,0V
1,7V
2,3V
0,8V
CF
3166
4,7K
3167
1K
7166
BC858B
1,3V
0,6V
2168
1N
+SOST
Y7026
BC848B
Y3168
39K
Y3170
100K
2173
2170
7410/12
A
3174
18K
3176
1K
2,6V
5176
150UH
7176
BC848B
1,4V
3172
15K
3178
330
3180
1K
3182
1K 2%
3,2V
7182
BC858B
2184
470P
1,5V
3184
1K
2180
68P
3186
1K 2%
2,6V
3188
1,2K 2%
7190
BC848B
3,8V
0,9V
3190
1,2K 2%
2117
1N
FSC/2FSC
2194
4,7N
+5VW1
3196
120K
1,0V
0,3V
7196
BC848B
7192
BC848B
1,1V
3194
100K
3192
1K
1524/11
HI-CH
CROT
Y 3069
6,8K
Y 6069
RLS4148
+5VF3
Y7352
BC858B
Y 7354
BC858B
Y 2358
82P
2%
Y 7360
BC858B
Y2360
68P
2%
Y 3352
4,7K
Y 3354
4,7K
Y 3356
100K
2%
Y 3358
4,7K
Y 3360
33K 2%
Y 3362
150K
SC-DL
Y7362
BCR133
3198
10K
B
5SW3
5200
33UH
2200
3200
22K
3206
4,7K
+5VF3
Y 7348
BC848B
C


7
8
9
10
11
12
13
14
15
FSC/2FSC
119
118
117
116
5SW3
5200
33UH
+5VF**
4,9V
VCC
2200
47U/25V
2201
10N
3,6V
2202
820P
3202
22K
2,8V
3204
33K
2,1V
3200
22K
2,9V
2204
10U/50V
3206
4,7K
2206
10N
3,7V
2207
3,3N 5%
3,0V
3208
22K
2208
3,3N
2,2V
0,3V
GND
BGP MMV
CONT SW
1/2
P.D
VCO FM
HD MMV
AMP 6dB
GCA
7200
M52063FP
2,3V
3226
820
3228
1K
2228
1N
7410/13
NTSC
NTSC(H)
+5VF**
3224
4,7K
3222
22K
4,9V
7224
BC848B
0V
2,2V
2220
10N
X2222
1N
X3221
100
3220
2,2K
1,6V
+5VF3
3230
33K
4,9V
1,8V
7234
BC848B
1,2V
3232
22K
3234
1K
+5VF3
4,9V
3236
5,6K
2,2V
7220
BC848B
3238
4,7K
2236
1N
5238
100UH
2238
390P
2219
82P
2,0V
2218
10N
3,0V
3218
1,5K
3216
3,3K
1,3V
+5VF**
3214
1,2K
3,3V
3212
680
2232
56P
2212
10N
2,2V
2216
56P
2210
10N
2,2V
3210
620
+5VF3
3314
1K
4,0V
0,8V
7312
BC858B
3,4V
3312
1K
3,4V
39
+5VW1
4,8V
0V
40
41
2240
47P
3240
1,5K
2,3V
42
1524/8
S-VHS
6244
RLS135
1,9V
43
COMPOSIT
7410/7
3244
33K
44
+5VF3
3242
47K
7410/13
NTSC
2246
10N
3,0V
45
3246
330
2248
10N
3,1V
46
3248
470K
2249
10N
2,3V
47
2250
0,1U
3,6V
48
3,4V
6250
RLS135
S/W
S/W
7410/5
+5VF3
3254
330
3252
22K
3250
22K
3256
1K
0V
0,6V
0V
7254
BC848B
7250
BC848B
2256
100P
1023
2422 549 42468
3
1
7
6
+5VF3
+5VW1
Y3328
4,7K
Y2324
1N
Y7326
BC848B
Y3324
2,2K
Y 2330
10N
Y3326
2,2K
S+5VA
Y3332
3,9K
Y3330
2,2K
Y7332
BC848B
Y 2332
1N
Y3336
1,8K
Y3334
5,6K
Y 2334
120P
Y5334
10UH
+5VF3
Y 3350
680
B
1K
3258
2
1/3
1025
5.06Mhz
SFB0336
4
1524/3
CVBS
TR
FBAS_TR
+5VF3
S+5VA
Y 7348
BC848B
Y 3346
15K
Y 2346
1N
Y 3348
150K
Y2348
120P
Y5348
10UH
C
3198
10K
3180
1K
3182
1K 2%
3,2V
0V
7182
BC858B
2184
470P
1,5V
0V
3,8V
0V
3188
1,2K 2%
7190
BC848B
1,5V
0V
3184
1K
0,9V
0V
2,6V
0V
2180
68P
3186
1K 2%
3190
1,2K 2%
2117
1N
5VW1
4,8V
0V
7196
BC848B
7192
BC848B
1,5V
0V
1,1V
0V
1K


13
14
15
16
17
18
19
20
FSC/2FSC
FSC-1
SYNC
2_FSC
NTSC
7510/13
NTSC(H)
+5VF3
3314
1K
4,0V
3,4V
0,8V
7312
BC858B
3312
1K
3310
10K
2302
1N
5302
47UH
3302
1,8K
XO
2304
33N
2309
5,6P
2306
4,5-20P
2307
2,7P
2308
33N
1030
4,433619MHZ
3408
2,2K
2408
10P
3406
1K
7406
BC848B
4,8V
2,4V
41
2,2V
3404
1K
7402
BC848B
1,8V
1,6V
3402
2,2K
7398
BC848B
0V
3400
18K
3398
47K
3395
470
2398
1N
2396
15P
3300
8,2K
2300
0,47U/100V
2399
10N
2297
22N
3298
56K
2296
0,47U/100V
3296
2,7K
2298
2,2U/100V
PBA
3294
47K
3295
100K
2294
10N
3308
2,2K
3306
56K
2314
10N
2312
100P
0,1V
4,8V
3230
33K
7234
BC848B
4,9V
1,8V
1,2V
3232
22K
3234
1K
5238
100UH
2238
390P
+5VW1
3236
5,6K
2236
1N
3238
4,7K
7220
BC848B
2,2V
117
2240
47P
3240
1,5K
2,3V
1524/8
6244
RLS135
S-VHS
COMPOSIT
7410/7
3244
33K
3242
47K
7410/13
2246
10N
3,0V
3246
330
2248
10N
3248
470K
3,1V
2249
10N
2250
0,1U
3,6V
3,4V
116
6250
RLS135
S/W
7410/5
3254
330
3252
22K
3250
22K
3256
1K
7254
BC848B
7250
BC848B
0,6V
2256
100P
1023
2422_549_42468
M52062AF
DIGITAL MONO MULTI
ROTARY
SUB BM
FSI MMV
VCXO
X3 AMP
APC DET (REC)
APC DET (PB)
SIDE LOCK DET
BURST ERROR DETADJ
TRICK
PAL SW
REC ON
AFC DET
90°
COMPOSITE COMPONENT DET
APC PC
321fH VCO
PB OUT AMP KILLER PILOT BURST ERASE
SECAM
NT/PAL
CCMB
6dB
PHASE SELECT
PILOT BURST GEN
10dB/6dB
ACC DET
KILLER DET
4dB AMP
PILOT BURST
NORMAL
PILOT BURST INSERT SW
MAIN BM
SW2
SW1
PB AMP
ACC AMP
REC2
REC1
REC OUT AMP KILLER SW
7270
3,5V
2,6V
2288
10N
3292
5,6K
3288
22K
3290
8,2K
2292
0,22U
2290
10N
1029
CODE741
2286
56P
3286
2,2K
2369
47N
3284
12K
3282
10K
112
2276
10N
2280
4,7U/63V
7280
BC848B
3280
22K
X3278
1K
2278
1U/100V
115
3274
10K
2274
33N
U/AUTOSE
1524/4
114
2260
1N
2263
10N
2264
10N
3264
1K
3266
1,8K
2266
10N
2268
1N
FBAS/CH
2271
10N
2272
10N
2269
1N
2273
10N
2275
2,2N
2262
82P
1027
CODE741
3268
2,7K
2270
33N
7268
BCR133
S+5VA
113
3272
1K
1025
1/3
1,6Mhz
SFB0336
2414
82P
3273
1K
CHSP
2277
68P
5277
4,7UH
3276
100
4.43Mhz
3327
1,2K
6250
3244
3400,3222,3250,3280
3168
+SOST
3262
560
3260
390
5.06Mhz
3258
1K
Y3328
4,7K
Y3326
2,2K
Y3324
2,2K
Y2324
1N
B
1524/3
CVBS
TR
FBAS_TR
Y3336
1,8K
Y3332
3,9K
Y 2332
1N
Y3334
5,6K
Y 2334
120P
Y5334
10UH
2321
1N
3321
2,2K

PCB SECAM/PAL TRANSCODER,


20
21
22
23
24
FSC/2FSC
2397
1N
2,5V
PHASE COMP
DIVIDER CIRCUIT
SEARCH CIRCUIT
NJM2228M
7390
VCO
+5VF3
2390
10N
3390
4,7K 2%
3,4V
2391
15P 2%
2392
33N
2_FSC
3394
470
2395
1U/100V
2,0V
2,4V
6 4,8V
5 3,1V
7510/13
NTSC
NTSC(H)
3400
18K
3395
470
3392
390
2393
2398
1N
3396
2,2K
3398
47K
2396
15P
4,8V
7402
BC848B
7398
BC848B
0V
1,8V
1,6V
3402
2,2K
2296
1U/100V
3296
2,7K
PBA
3294
47K
3295
100K
+5VF3
+5VF3
3384
47K
4,9V
4,2V
4,2V
7380
BC848B
3,7V
7382
BC858B
1,3V
3380
220K
3382
100K
1524/1
CH
YC
FBAS/YC
3,5V
2,6V
2288
10N
3288
22K
3290
8,2K
2292
0,22U
3292
5,6K
2290
10N
2378
47N
0V
7376
BC848B
2370
4,7U/63V
3370
47K
CROT
3376
4,7K
2376
1U/50V
0V
1524/11
CROT
HI-CH
2374
1U/100V
3374
4,7K
0V
7374
BC858B
2372
47N
3372
47K
1029
CODE741
+5VF3
2369
47N
2286
56P
3286
2,2K
3284
12K
5SW3
5SW3
3412
4,7K
5349
33UH
+5VF3
+5VF3
2411
47U/25V
4,1V
4,9V
4,8V
7411
BC808-40
5350
33UH
+5VW1
+5VW1
4,8V
0V
3411
4,7K
2412
47U/25V
3282
10K
112
2280
4,7U/63V
2,2V
7280
BC848B
0V
3280
22K
NTSC
NTSC(H)
7410/13
2276
10N
X3278
1K
+5VF3
3,1V
2,7V
2278
1U/100V
115
3274
10K
2274
33N
U/AUTOSE
AUTO SEC
1524/4
2277
68P
5277
4,7UH
SR-A
(RGB/SP)
SP 3948
5A1
3410
220K
2410
10N
1524/12
S+5VA
0V
4,9V
5,1V
S+5VA
S+5VA
7410
HEF4094
SR 9S
0V STROBE
STROBE
DATA
0V DATA8
0V CLOCK
CLOCK
1524/9
1524/7
6250
3244
S/W
5,1V
0V
COMPOSIT
SECDEC
5,1V
NTSC
NTSC(H)
SC-DL
+SOST
5,1V
1/3 1025
4.43Mhz
SFB0336
3327
1,2K
3400,3222,3250,3280
3168
+SOST
SECDEC
SP 3999
A
B
C
D
E
F
G
H
J
....
DC VOLTAGES FOR ALL MODUS
..V
DC VOLTAGES MEASURED PLAYBACK
..V
DC VOLTAGES MEASURED RECORD

PCB SECAM/PAL TRANSCODER, SF

1023 G13	2378 D21	3321 J17
1025 H15	2390 B23	3324 H13
1025 H18	2391 B23	3326 H13
1025 H19	2392 C23	3327 I20
1027 H16	2393 B22	3328 H13
1029 E20	2395 B22	3330 H12
1030 D17	2396 C21	3332 H13
1524 D1	2397 B21	3334 I13
1525 F1	2398 B21	3336 I14
2117 D8	2399 C18	3346 H9
2164 D4	2408 C18	3348 I9
2166 D4	2410 H22	3350 I11
2168 D4	2411 F22	3352 H3
2170 E4	2412 G22	3354 H4
2172 D6	2414 H18	3356 H4
2173 D5	3069 F4	3358 H5
2174 D6	3166 D3	3360 G5
2175 C5	3167 E4	3362 G5
2180 D7	3168 E4	3370 E23
2184 D7	3170 E4	3372 E22
2194 E6	3172 D6	3374 E21
2200 D9	3174 C6	3376 E21
2201 D9	3176 C6	3380 D22
2202 D9	3178 D6	3382 D22
2204 E9	3180 C7	3384 C22
2206 F9	3182 C7	3390 B23
2207 F9	3184 D7	3392 B21
2208 G9	3186 D7	3394 B21
2210 G12	3188 C8	3395 B21
2212 G12	3190 D8	3396 B21
2216 G12	3192 F6	3398 C20
2218 F11	3194 F6	3400 B20
2219 E11	3196 E6	3402 C19
2220 E12	3198 H7	3404 B19
2222 D12	3200 E9	3406 C18
2228 D12	3202 E9	3408 B18
2232 G12	3204 E9	3410 G23
2236 E13	3206 F9	3411 G22
2238 E14	3208 F9	3412 F22
2240 E14	3210 G12	5176 C6
2246 F15	3212 G12	5200 D9
2248 F14	3214 F11	5238 D14
2249 F15	3216 F12	5277 H19
2250 F15	3218 F12	5302 C17
2256 G13	3220 E12	5334 I14
2260 G15	3221 E12	5348 I10
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2263 G16	3224 E12	5350 F22
2264 G16	3226 D11	6069 F5
2266 G17	3228 D12	6244 E14
2268 G17	3230 D13	6250 G15
2269 G18	3232 D13	7026 E5
2270 G17	3234 D13	7166 E4
2271 G17	3236 E13	7175 D5
2272 G18	3238 E13	7176 D6
2273 G18	3240 E15	7182 C7
2274 G19	3242 F14	7190 D7
2275 G19	3244 E15	7192 E7
2276 F19	3246 F14	7196 E7
2277 H19	3248 F14	7200 G10
2278 F19	3250 F13	7220 E13
2280 F20	3252 F13	7224 E11
2286 E19	3254 F13	7234 D13
2288 D19	3256 F12	7250 G13
2290 E20	3258 H14	7254 G13
2292 E20	3260 H15	7268 H17
2294 D19	3262 G15	7270 E17
2296 C19	3264 G16	7280 F21
2297 C18	3266 G16	7312 C15
2298 D19	3268 H16	7326 H12
2300 C18	3272 H18	7332 I12
2302 B17	3273 H19	7348 I9
2304 C17	3274 G19	7352 G4
2306 C17	3276 H19	7354 G4
2307 C17	3278 F20	7360 G5
2308 D16	3280 F21	7362 H6
2309 C17	3282 F21	7374 E22
2312 D16	3284 F20	7376 D22
2314 C15	3286 E19	7380 C22
2321 J17	3288 D19	7382 D23
2324 H14	3290 D20	7390 B22
2330 H11	3292 D20	7398 B20
2332 I13	3294 D19	7402 B19
2334 I13	3295 D19	7406 B18
2346 I9	3296 C19	7410 H22
2348 I10	3298 C19	7411 F22
2358 G4	3300 C18	
2360 G6	3302 C17	
2369 E21	3306 C16	
2370 E22	3308 C16	
2372 E21	3310 C15	
2374 E21	3312 C13	
2376 E21	3314 C14	

	For sets with
A	ME-SECAM
B	ME-SECAM Identif.
C	SECAM EtoE

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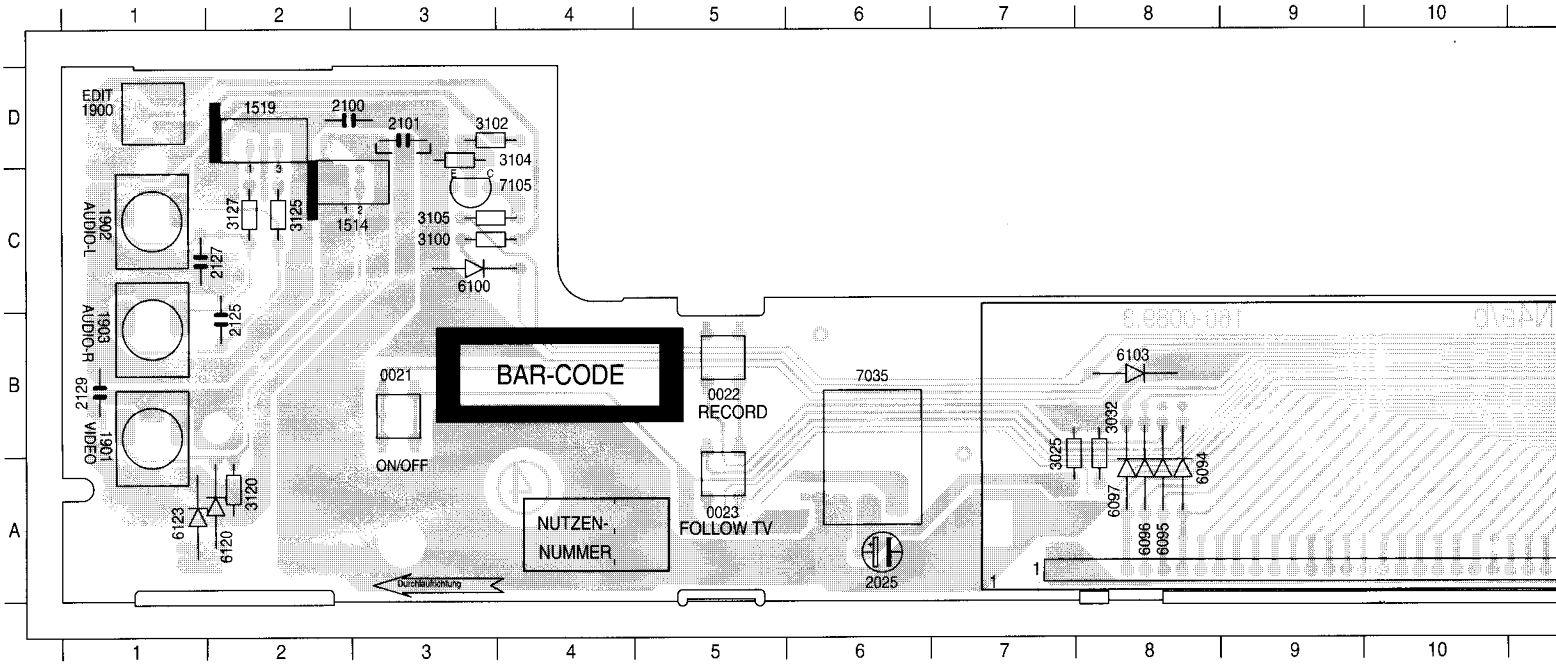
Note on the components:
"X" components are not us
"Y" components are option

Display Control PDCPN4

Conventional Assembly

View of components side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9
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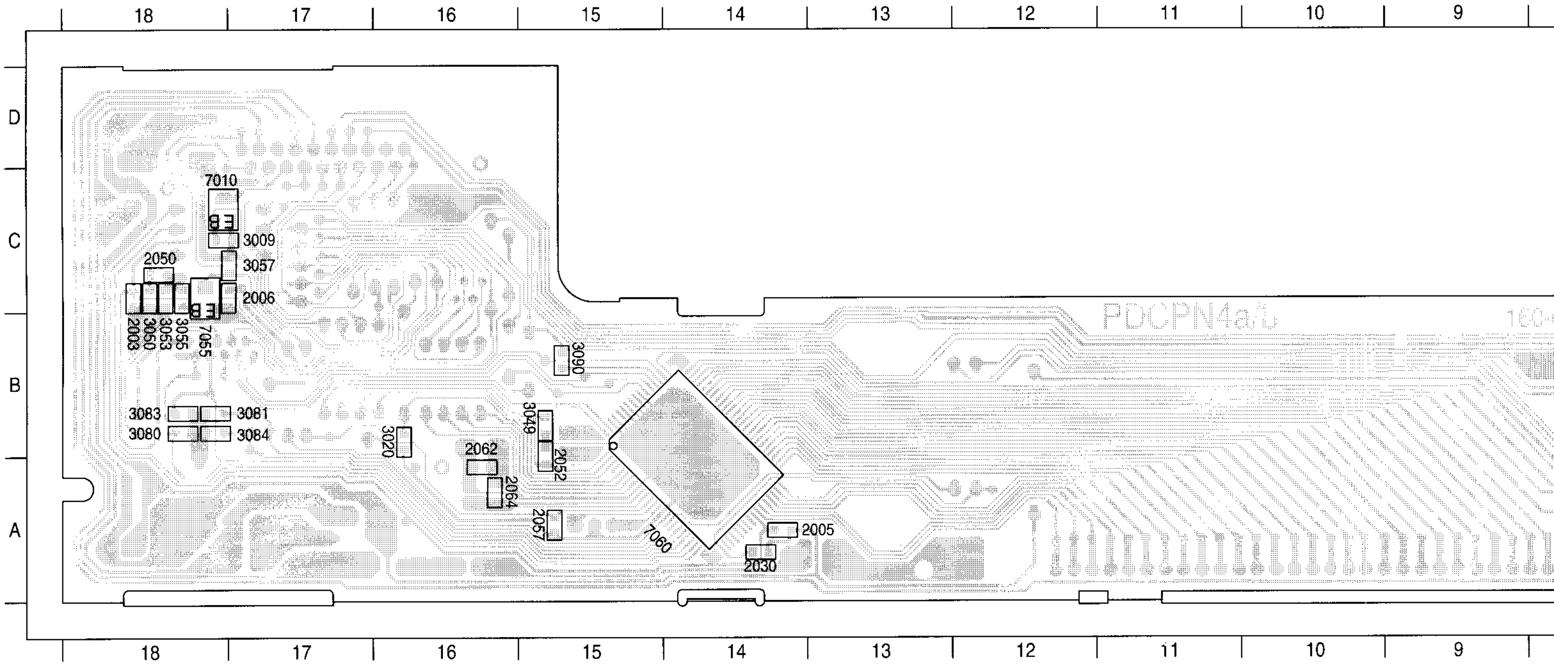
D
C
B
A
EDIT
1900
1519
2100
2101
3102
3104
7105
3127
3125
1514
3105
3100
6100
1902
AUDIO-L
2127
1903
AUDIO-R
2125
2129
1901
VIDEO
0021
ON/OFF
BAR-CODE
0022
RECORD
0023
FOLLOW TV
7035
2025
NUTZEN-
NUMMER
Durchlaufrichtung
6123
6120
3120
6103
3025
3032
6097
6096
6095
6094

0021	B 3	1061	A 15	1516	C 17	1903	B 1	2100	D 3	3000	C 18	3025	B 8	3074	A 17	3105	C 3	6000	C 16	6094	A 8	610
0022	B 5	1062	A 16	1519	D 2	2000	A 18	2101	D 3	3001	D 18	3032	B 8	3075	A 16	3120	A 2	6003	C 16	6095	A 8	612
0023	A 5	1510	D 17	1900	D 1	2025	A 6	2125	B 2	3002	C 18	3071	A 13	3100	C 3	3125	C 2	6025	B 17	6096	A 8	612
0110	A 10	1514	C 3	1901	B 1	2060	B 16	2127	C 1	3005	B 16	3072	A 17	3102	D 3	3127	C 2	6052	C 18	6097	A 8	703
0902	B 4	1515	B 18	1902	C 1	2070	A 18	2129	B 1	3007	B 17	3073	A 16	3104	D 3	5000	D 18	6070	A 17	6100	C 3	710

SMD Assembly

View of solder side


18
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16
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14
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12
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D
C
B
A
7010
3009
2050
3057
2006
2003
3050
3053
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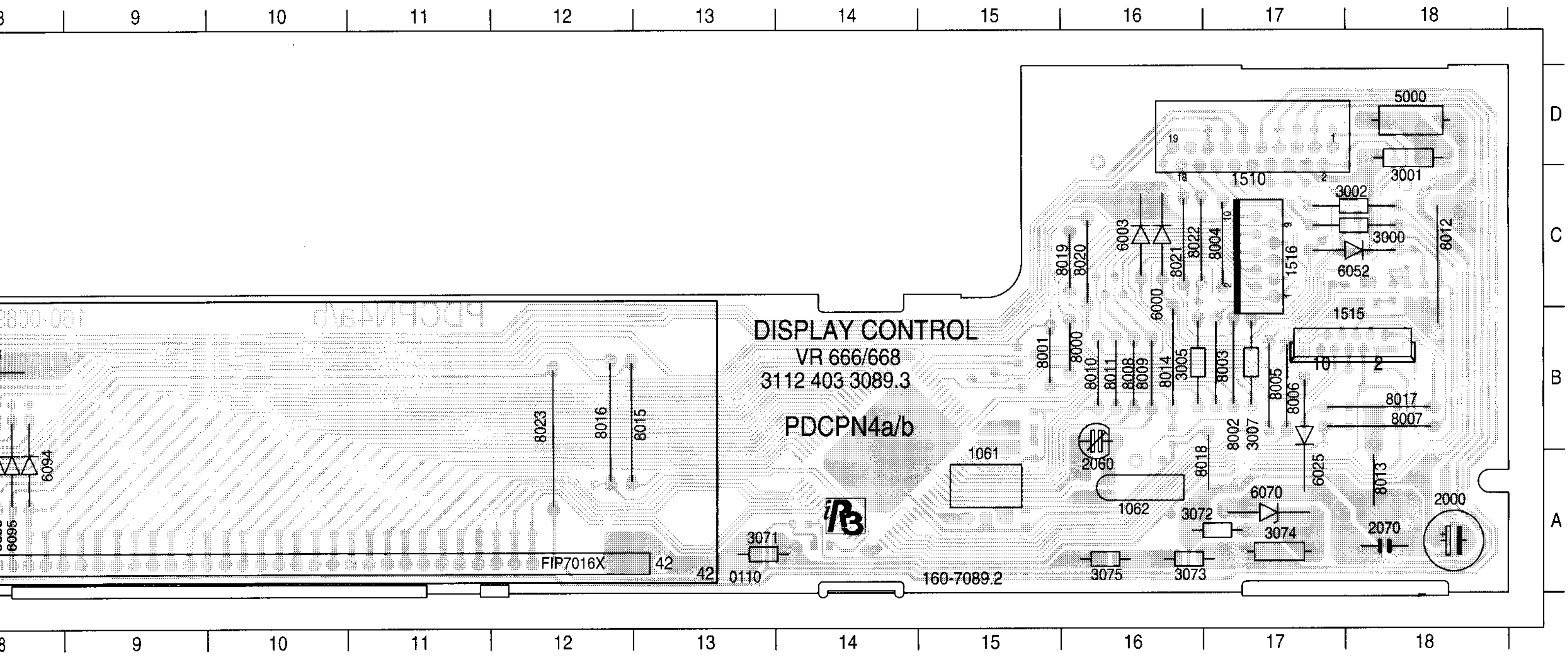
7055
3090
3083
3081
3080
3084
3020
3049
2052
2062
2064
2057
7060
2005
2030
PDCPN4a/b

2003	C 18	2030	A 14	2052	B 15	2064	A 16	3030	A 6	3053	C 18	3080	B 18	3084	B 18	7055	C 18
2005	A 14	2035	A 6	2057	A 15	3009	C 18	3049	B 15	3055	C 18	3081	B 18	3090	B 15	7060	B 14
2006	C 18	2050	C 18	2062	A 16	3020	B 16	3050	C 18	3057	C 18	3083	B 18	7010	C 18		


DISPLAY CONTROL
VR 666/668
3112 403 3089.3
PDCPN4a/b
160-7089.2
FIP7016X
42
0110
1061
1062
1510
1515
1516
2000
2060
2070
3000
3001
3002
3005
3007
3071
3072
3073
3074
3075
5000
6000
6003
6025
6052
6070
6094
6095
8000
8001
8002
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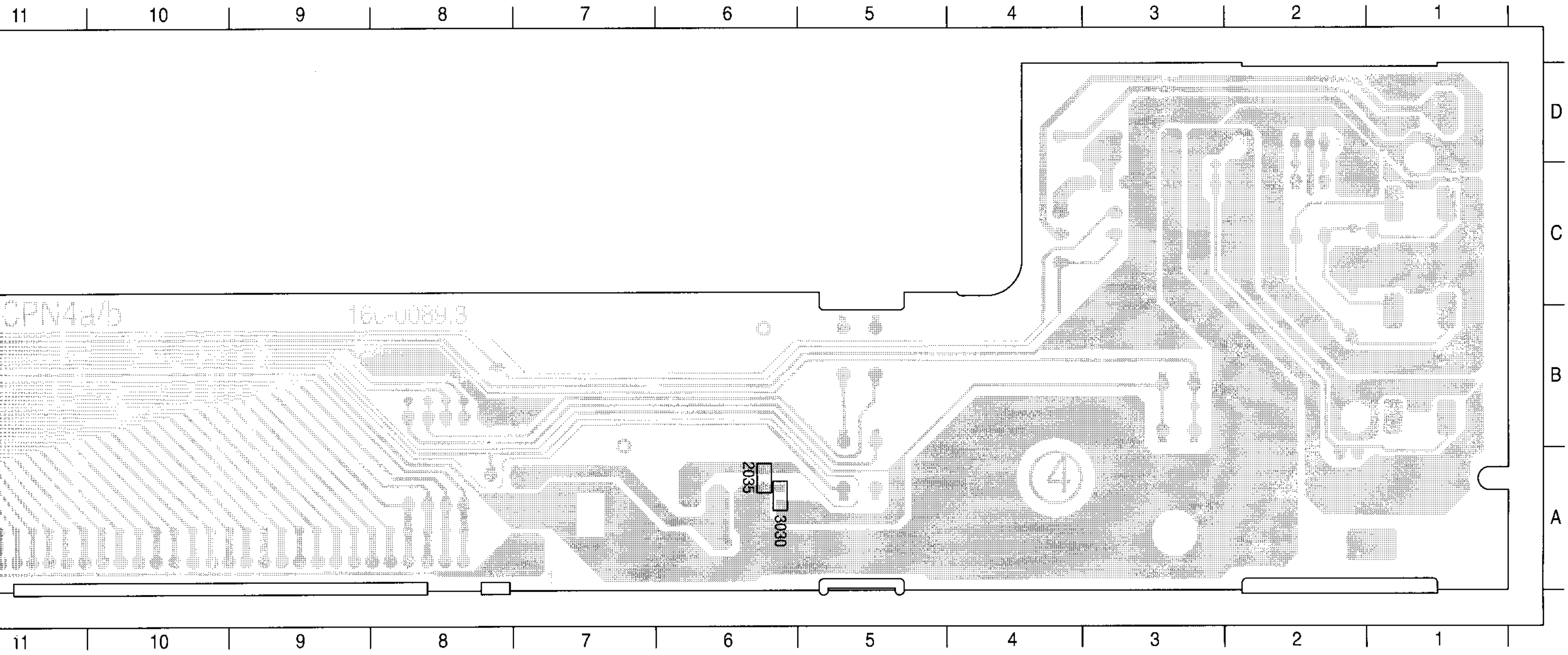
8018
8019
8020
8021
8022
8023
9
10
11
12
13
14
15
16
17
18
A
B
C
D

05	C 3	6000	C 16	6094	A 8	6103	B 8	8000	B 16	8005	B 17	8010	B 16	8015	B 13	8020	C 16
20	A 2	6003	C 16	6095	A 8	6120	A 2	8001	B 15	8006	B 17	8011	B 16	8016	B 12	8021	C 16
25	C 2	6025	B 17	6096	A 8	6123	A 1	8002	B 17	8007	B 18	8012	C 18	8017	B 18	8022	C 17
27	C 2	6052	C 18	6097	A 8	7035	B 6	8003	B 17	8008	B 16	8013	A 18	8018	A 17	8023	B 12
00	D 18	6070	A 17	6100	C 3	7105	C 3	8004	C 17	8009	B 16	8014	B 16	8019	C 16		


CPN4a/b
160-0089.3
2035
3030
④
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8
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6
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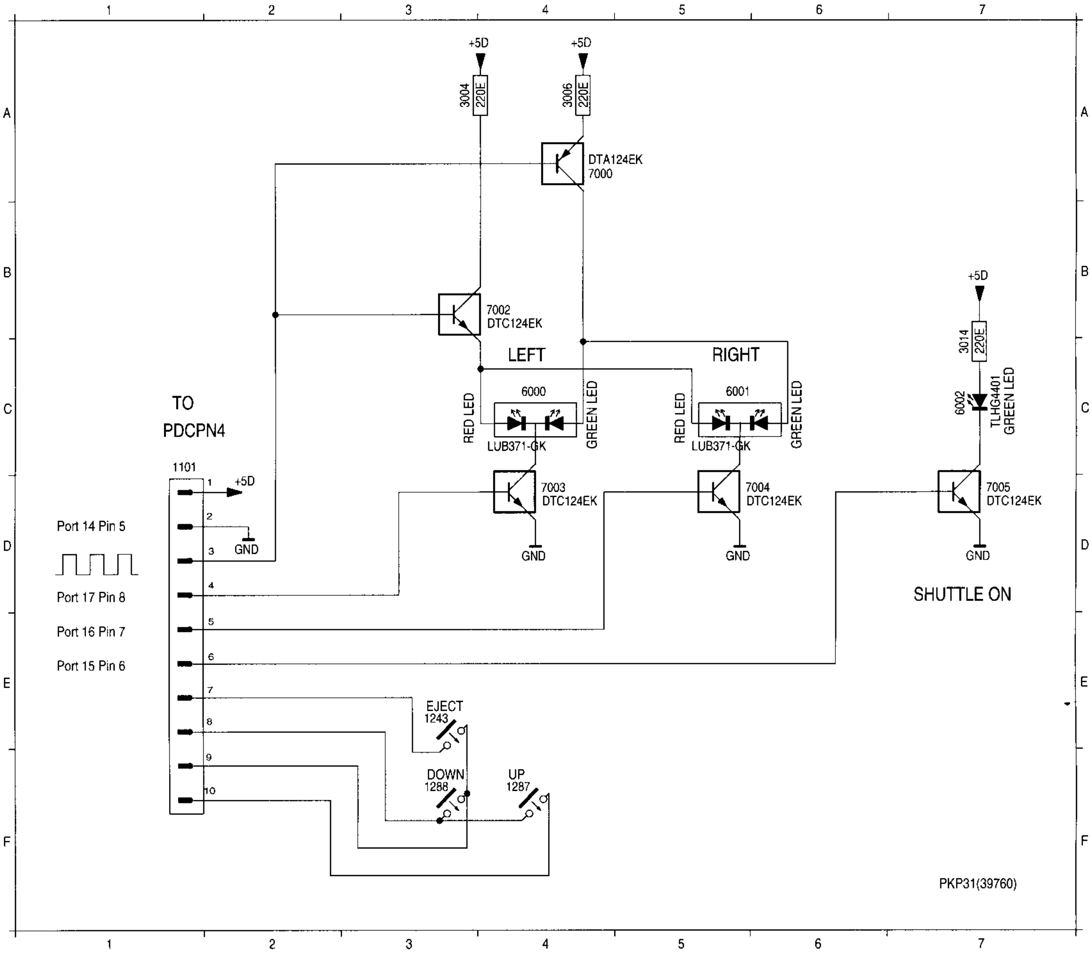
4
3
2
1
A
B
C
D

55	C 18
60	B 14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3004 220E
3006 220E
DTA124EK 7000
7002 DTC124EK
LEFT
RIGHT
6000
6001
RED LED
GREEN LED
LUB371-GK
3014 220E
6002 TLHG4401 GREEN LED
TO PDCPN4
1101
GND
7003 DTC124EK
7004 DTC124EK
7005 DTC124EK
SHUTTLE ON
Port 14 Pin 5
Port 17 Pin 8
Port 16 Pin 7
Port 15 Pin 6
EJECT 1243
DOWN 1288
UP 1287
PKP31(39760)

1101
1243
1287
1288
3004
3006
3014
6000
6001
6002
7000
7002
7003
7004
7005

Interconnec

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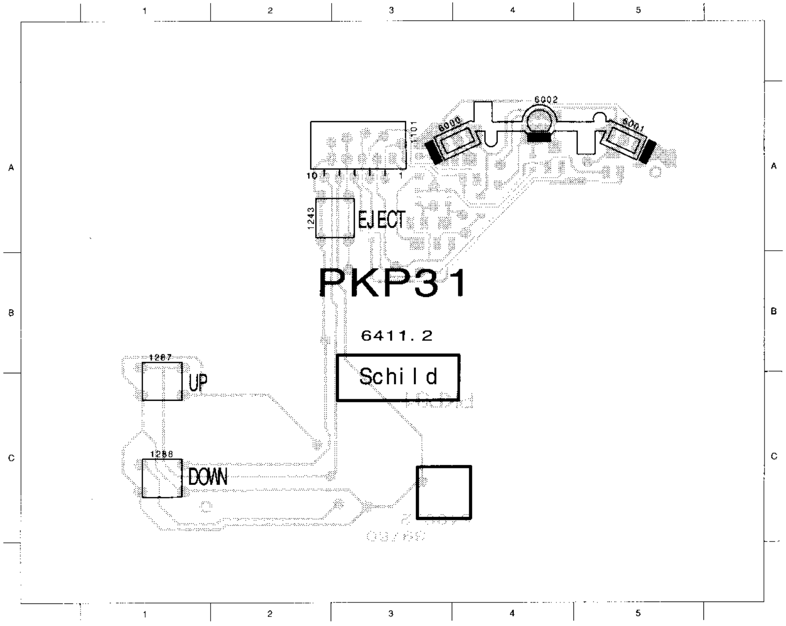
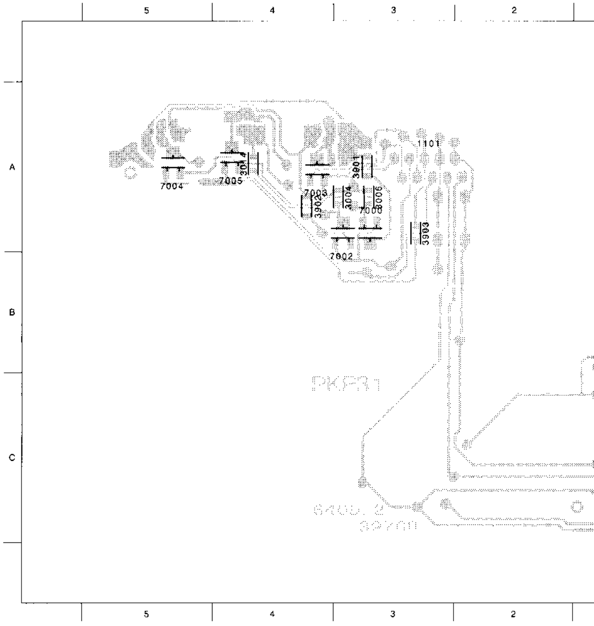
DC page 3-

0012	A	5
1101	A	3
1243	A	3
1287	C	1
1288	C	1
6000	A	4
6001	A	5
6002	A	4


6002
6000
6001
1101
10
1
1243
EJECT
PKP31
6411.2
Schild
1287
UP
1288
DOWN

3004	A	3
3006	A	3
3014	A	4
3901	A	3
3902	A	4
3903	A	3
7000	A	3
7002	A	3
7003	A	4
7004	A	5
7005	A	4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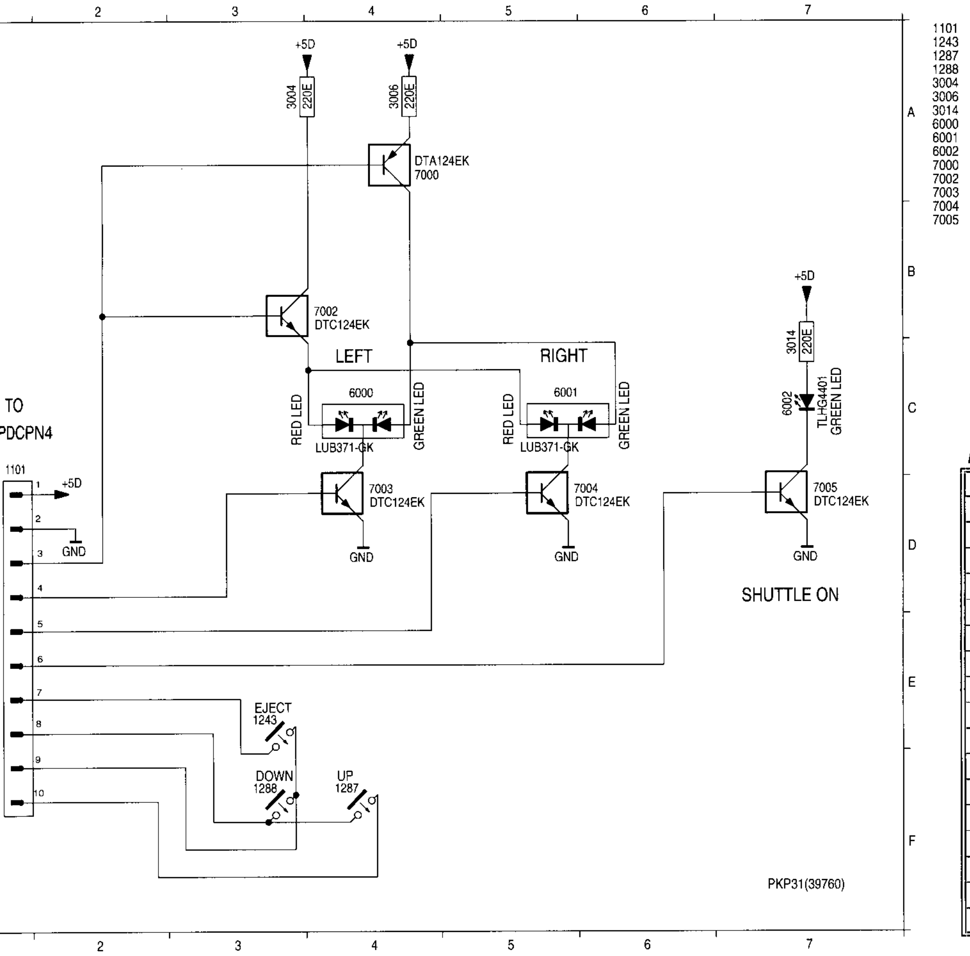
7005
1101
7003
7002
3901
3903
3004
3006
PKP31


+5D
+5D
3004
220E
3006
220E
DTA124EK
7000
7002
DTC124EK
LEFT
RIGHT
6000
6001
RED LED
GREEN LED
RED LED
GREEN LED
LUB371-GK
LUB371-GK
+5D
3014
220E
6002
TLHG4401
GREEN LED
TO
PDCPN4
1101
+5D
GND
7003
DTC124EK
7004
DTC124EK
7005
DTC124EK
GND
GND
GND
SHUTTLE ON
EJECT
1243
DOWN
1288
UP
1287
PKP31(39760)
1101
1243
1287
1288
3004
3006
3014
6000
6001
6002
7000
7002
7003
7004
7005
A
B
C
D
E
F
2
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4
5
6
7

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SF	page 3-53
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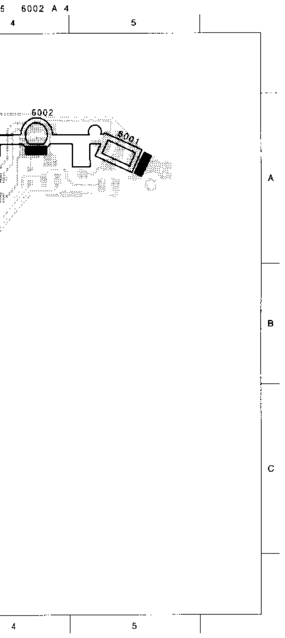
5 6002 A 4


6002
6001
A
B
C
4
5

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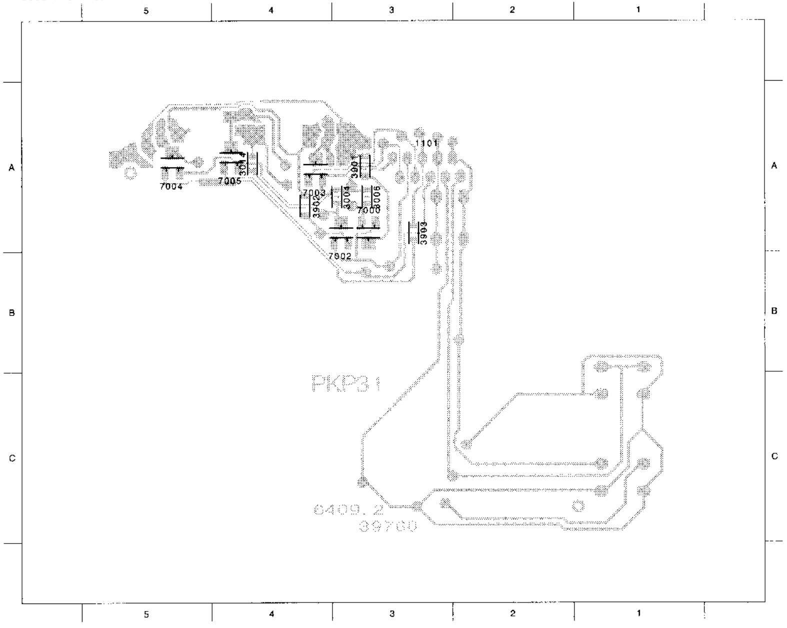
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A
B
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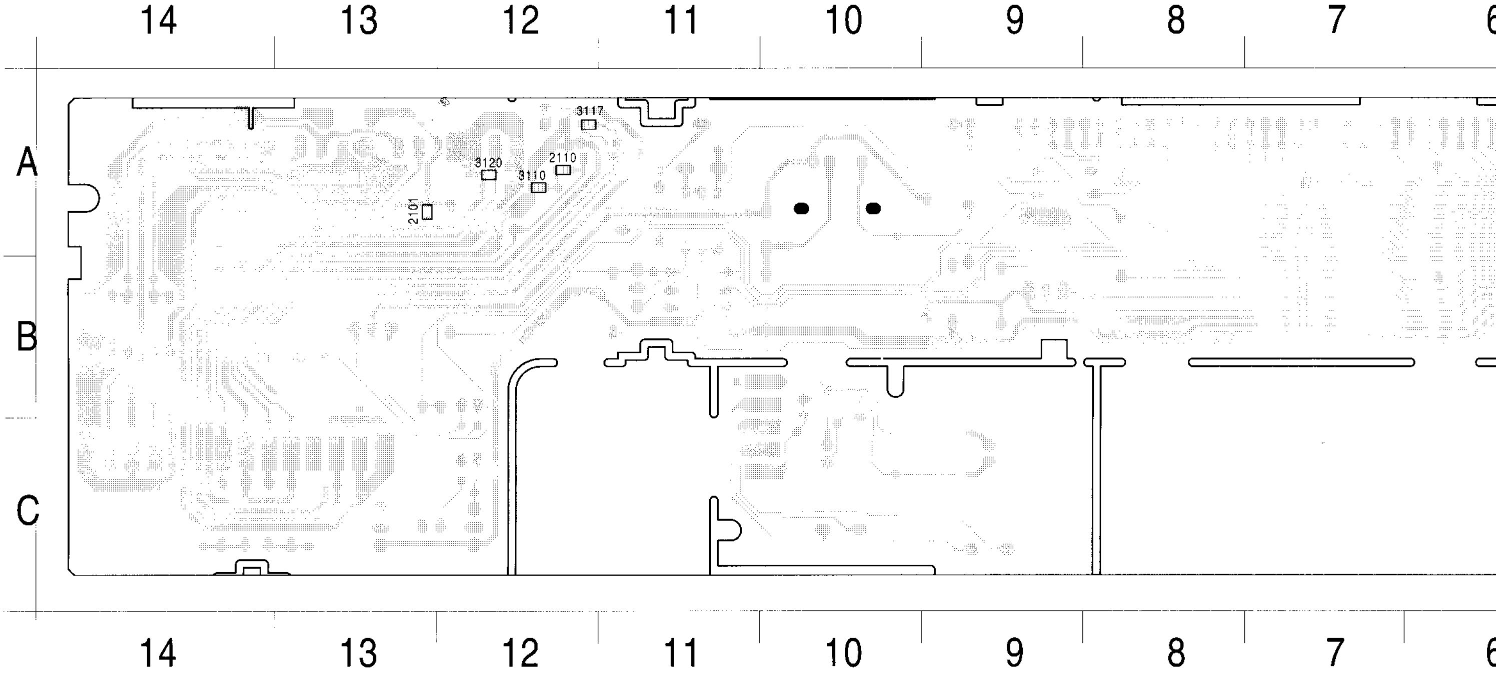
7005
3014
7003
3902
3004
7000
3006
3901
3903
7002
PKP31
0409.2
39760

Display Control PDCPN3

4008 C 2	4000 C 1	3049 B 1	2059 B 3	5_VD B 10	T972 A 9	T896 A 4	T552 A 11	T407 B 14	T372 A 13	T134 A 1	T113 C
4009 C 3	4001 A 3	3050 B 1	2062 B 2	2003 C 1	T985 B 12	T897 A 5	T601 B 10	T430 A 14	T375 A 14	T135 A 9	T114 B
6025 A 3	4002 A 1	3053 B 1	2064 B 1	2005 A 1	T986 B 12	T900 B 13	T605 B 10	T432 A 14	T377 A 14	T137 A 8	T115 C
6052 B 1	4003 A 1	3055 B 1	2101 A 13	2006 B 1	T987 C 12	T911 A 5	T606 B 10	T443 C 14	T401 C 13	T138 B 1	T116 B
7010 B 1	4004 A 2	3057 A 1	2110 A 12	2035 B 1	T988 B 12	T925 A 10	T607 B 10	T445 C 13	T402 C 13	T139 A 9	T118 C
7055 A 1	4005 C 1	3110 A 12	3009 B 3	2050 B 1	T995 B 2	T952 B 1	T621 B 1	T450 A 12	T404 B 13	T309 B 14	T119 C
7060 A 2	4006 B 3	3117 A 12	3020 B 1	2052 B 2	VI DEO B 13	T953 B 1	T622 B 1	T500 A 11	T405 B 14	T310 B 14	T131 A
7095 B 2	4007 C 2	3120 A 12	3021 B 1	2057 A 1	5VD C 3	T964 A 4	T895 A 4	T550 A 11	T406 B 14	T311 B 14	T132 B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13
12
11
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8
7
A
B
C
3117
3120
2110
3110
2101
14
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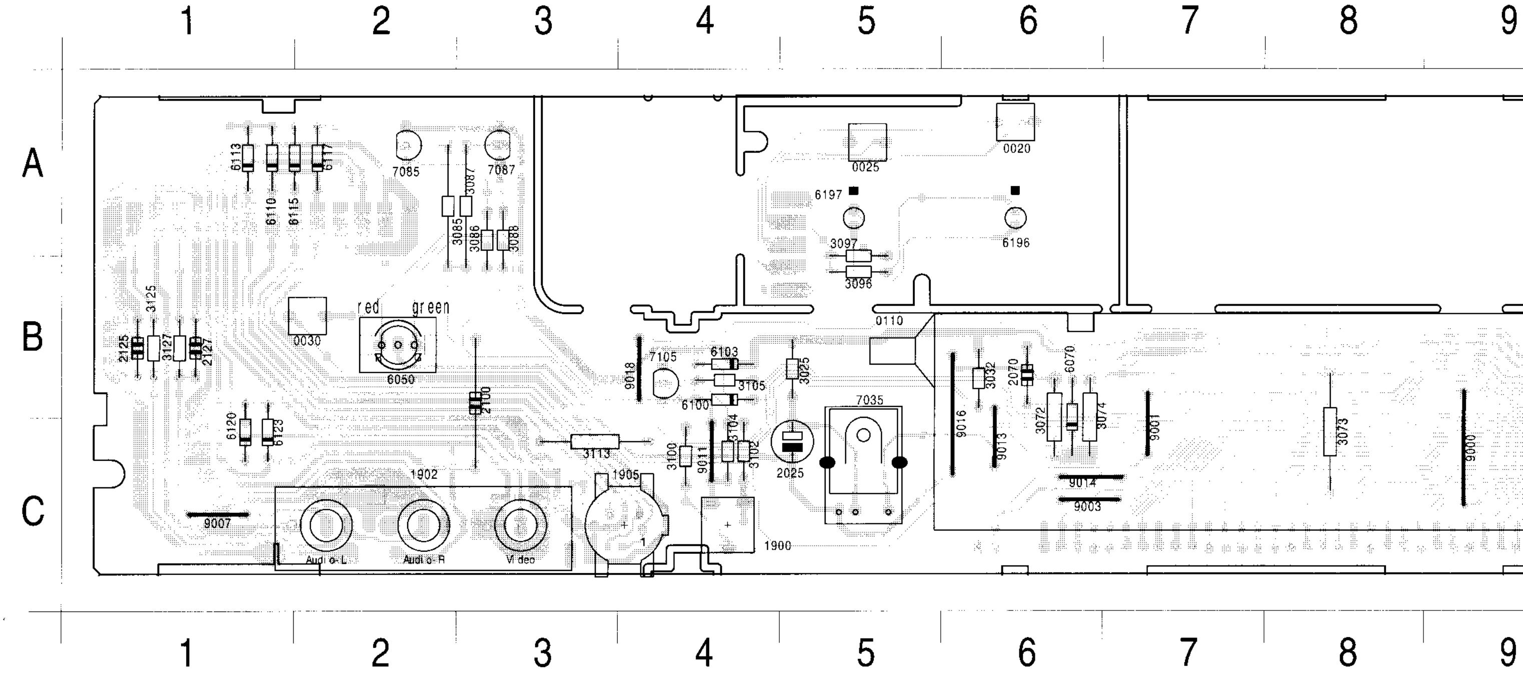
7

0020 A 6	0025 A 5	0029 C 11	0110 C 6	1510 A 14	2000 B 14	2070 B 6	3000 A 13	3007 B 12	3032 B 6	3074 B 6	3087 A 3	3097 A 5	3105 B 4	5000 B 14	6022 A 14	6096 B 12	6110 A
0021 C 12	0026 C 11	0030 A 1	0130 B 11	1900 C 4	2025 B 5	2100 B 3	3001 B 14	3022 A 14	3064 B 11	3075 C 10	3088 A 3	3100 C 4	3113 B 4	6000 A 14	6050 B 2	6097 B 10	6113 A
0023 C 12	0027 C 13	0100 B 2	1060 B 14	1902 C 2	2030 B 14	2125 B 1	3002 A 14	3025 B 5	3072 B 6	3085 A 2	3095 A 13	3102 B 4	3125 A 1	6003 A 14	6070 B 6	6100 B 4	6115 A
0024 C 13	0028 C 14	0101 B 5	1062 B 13	1905 C 4	2060 A 14	2127 A 1	3005 A 13	3030 B 14	3073 C 8	3086 A 3	3096 A 5	3104 B 4	3127 A 1	6021 A 14	6095 B 10	6103 B 4	6117 A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C
6113
6110
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3086
3088
0025
0020
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6196
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3096
3125
2125
3127
2127
red
green
0030
6050
2100
0110
7105
6103
9018
3105
6100
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9016
9013
3072
3074
9001
3073
9000
7035
6120
6123
3113
3100
9011
3104
3102
2025
9014
9003
1902
1905
9007
Audi o-L
Audi o-R
Vi deo
1900
1
2
3
4
5
6
7
8
9

896 A 4
897 A 5
900 B 13
911 A 5
925 A 10
952 B 1
953 B 1
964 A 4

T552 A 11
T601 B 10
T605 B 10
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T607 B 10
T621 B 1
T622 B 1
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T432 A 14
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T550 A 11

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T402 C 13
T404 B 13
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T406 B 14

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T132 B 2

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T108 C 1
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T059 A 8

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T047 A 7
T048 A 7
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T050 A 7
T051 A 7

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T038 A 6
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T040 A 6
T041 A 6
T042 A 7
T043 A 7

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T017 A 10
T025 A 13
T033 A 1
T034 A 6
T035 A 6

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GND-CH B 14
GND-CVS B 13
GND-V B 13
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KEY2 C 2
PLAY B 10

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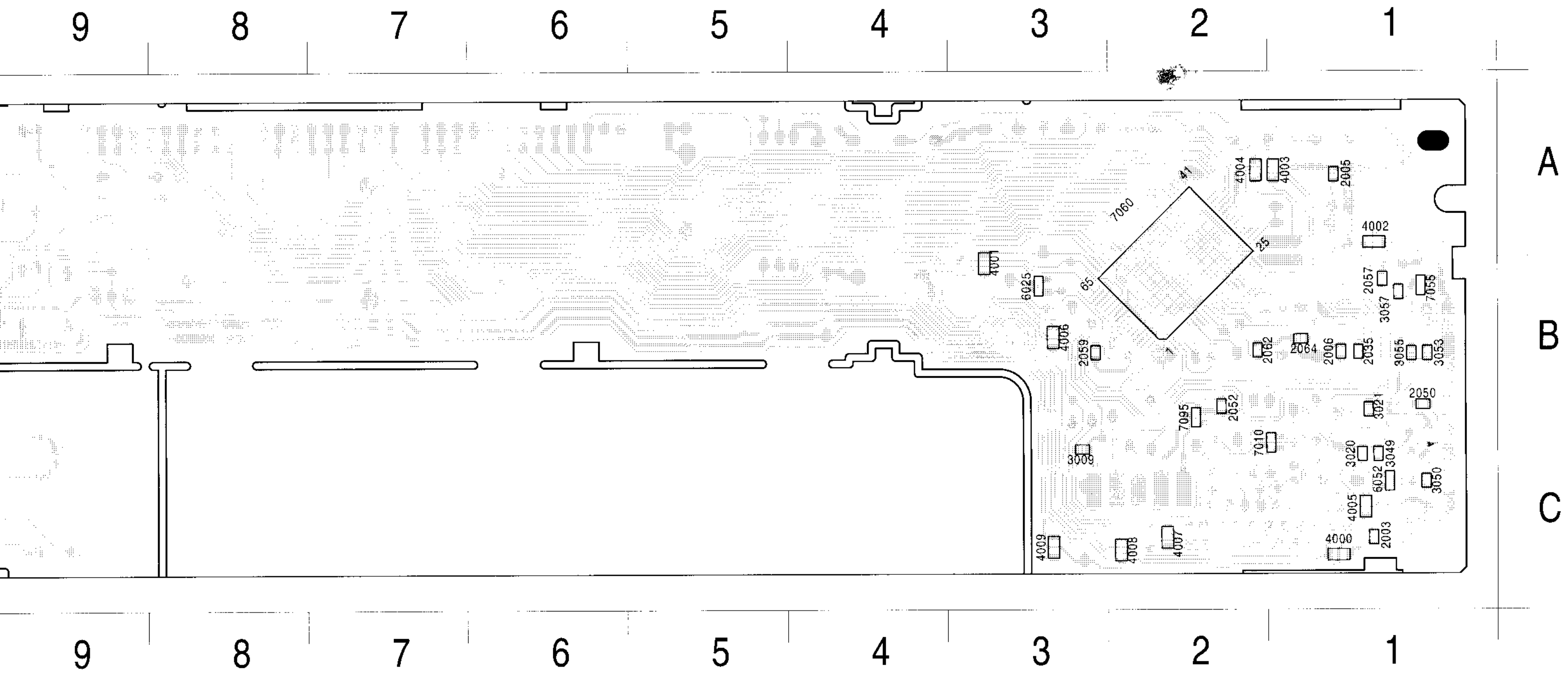
AR B 14
BL C 2
CH B 14
CVS B 14
EJECT B 10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3049
6052
3050
4005
4009
4008
4007
4000
2003

6
10
2
3

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3096 A 5

3097 A 5
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3102 B 4
3104 B 4

3105 B 4
3113 B 4
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3127 A 1

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6000 A 14
6003 A 14
6021 A 14

6022 A 14
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6070 B 6
6095 B 10

6096 B 12
6097 B 10
6100 B 4
6103 B 4

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6115 A 1
6117 A 2

6120 B 1
6123 B 1
6196 A 6
6197 A 5

7035 C 5
7085 A 2
7087 A 3
7105 B 4

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9001 B 7
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9003 C 6

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9005 B 11
9006 B 12
9007 C 1

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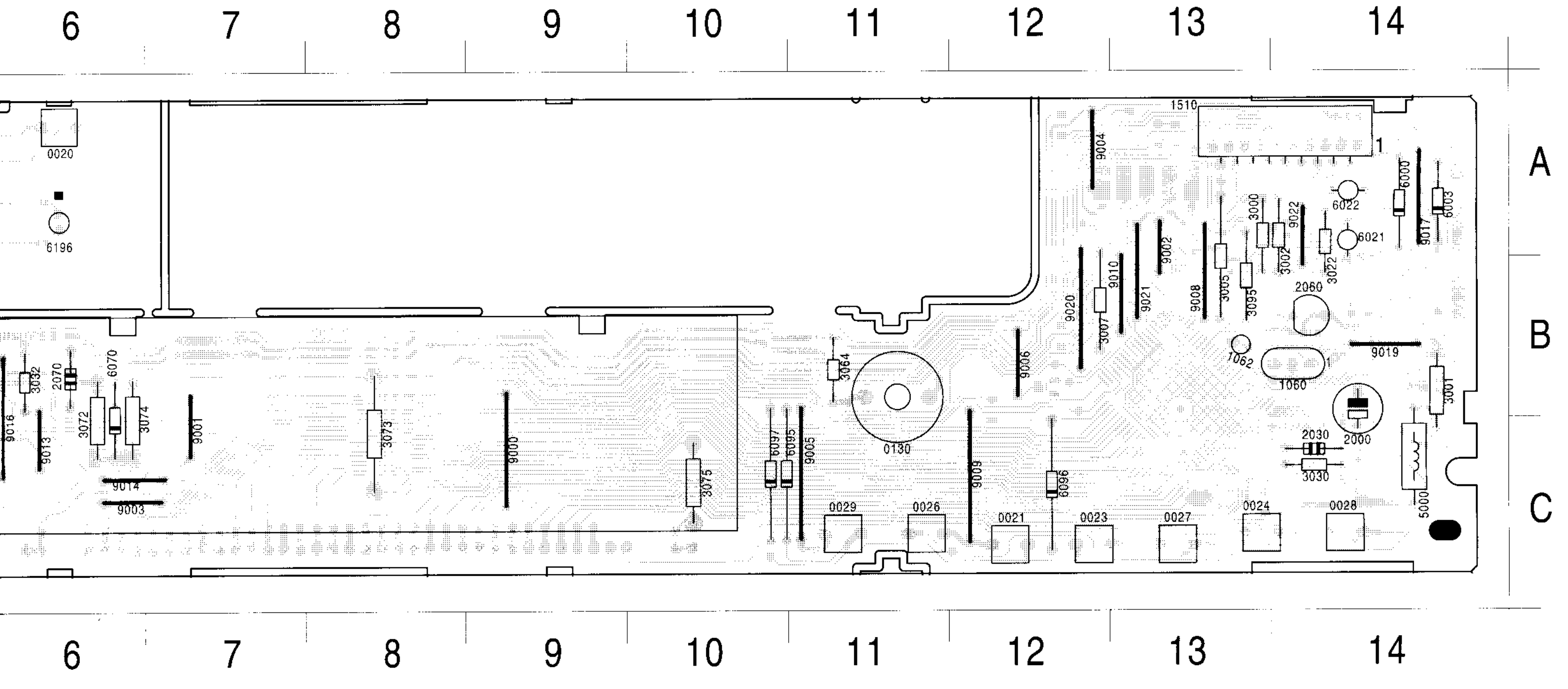
9009 C 12
9010 A 13
9011 B 4

9013 B 6
9014 B 6
9016 B 6
9017 A 14

9018 B 4
9019 B 14
9020 B 12
9021 A 13

9022 A 14


6
7
8
9
10
11
12
13
14
A
B
C
0020
6196
1510
1
9004
6000
6003
6022
6021
9017
3000
9022
3002
3022
9002
9010
9021
9008
3005
3095
9020
3007
2060
9006
1062
1060
9019
3001
2000
2030
3030
5000
3064
0130
9009
6096
6097
6095
9005
3075
9000
3073
9001
3032
2070
6070
3072
3074
9016
9013
9014
9003
0029
0026
0021
0023
0027
0024
0028

Display Control PDCPN4 (DC)

Interconnections:

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HC page 3-36
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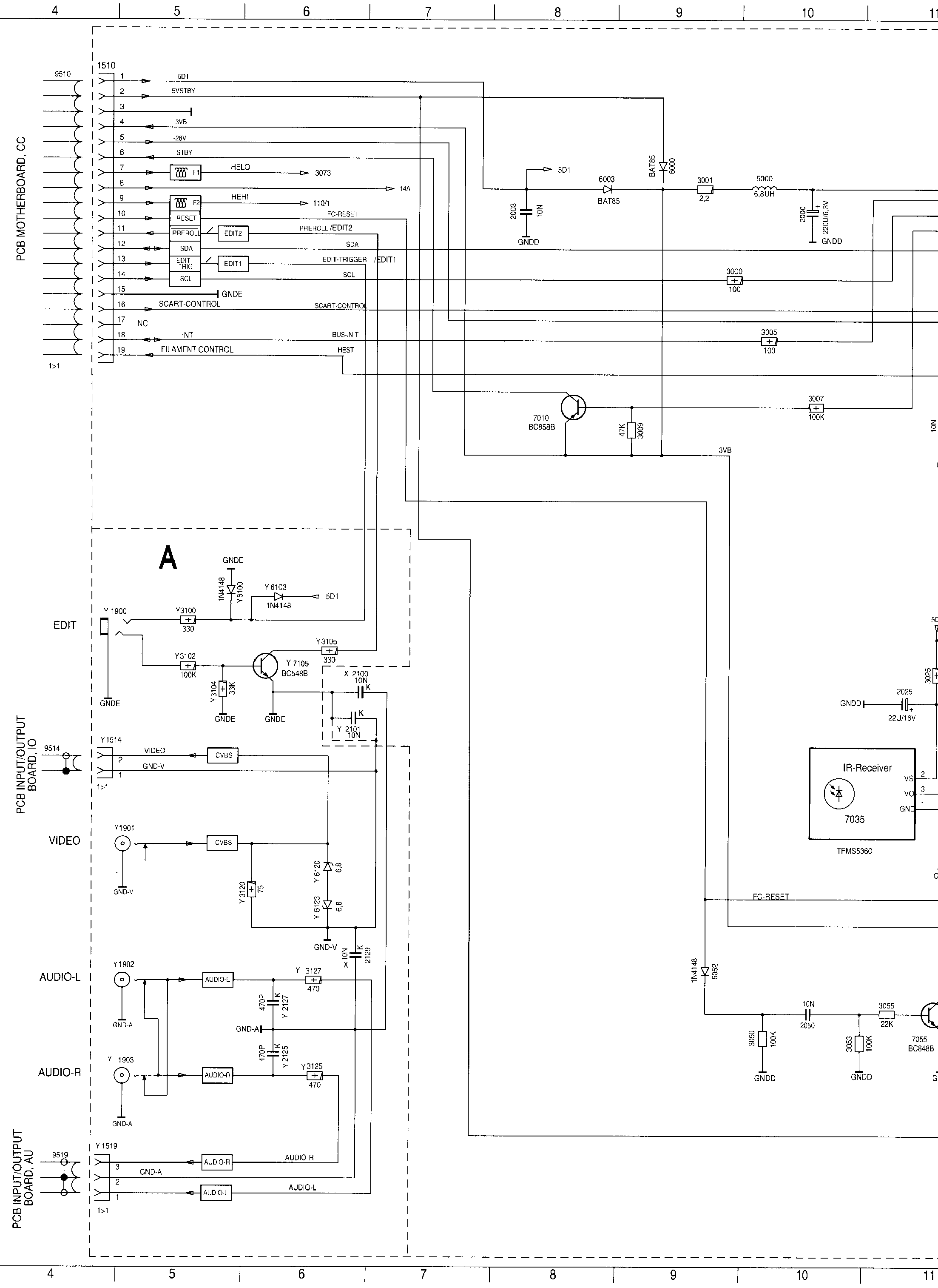
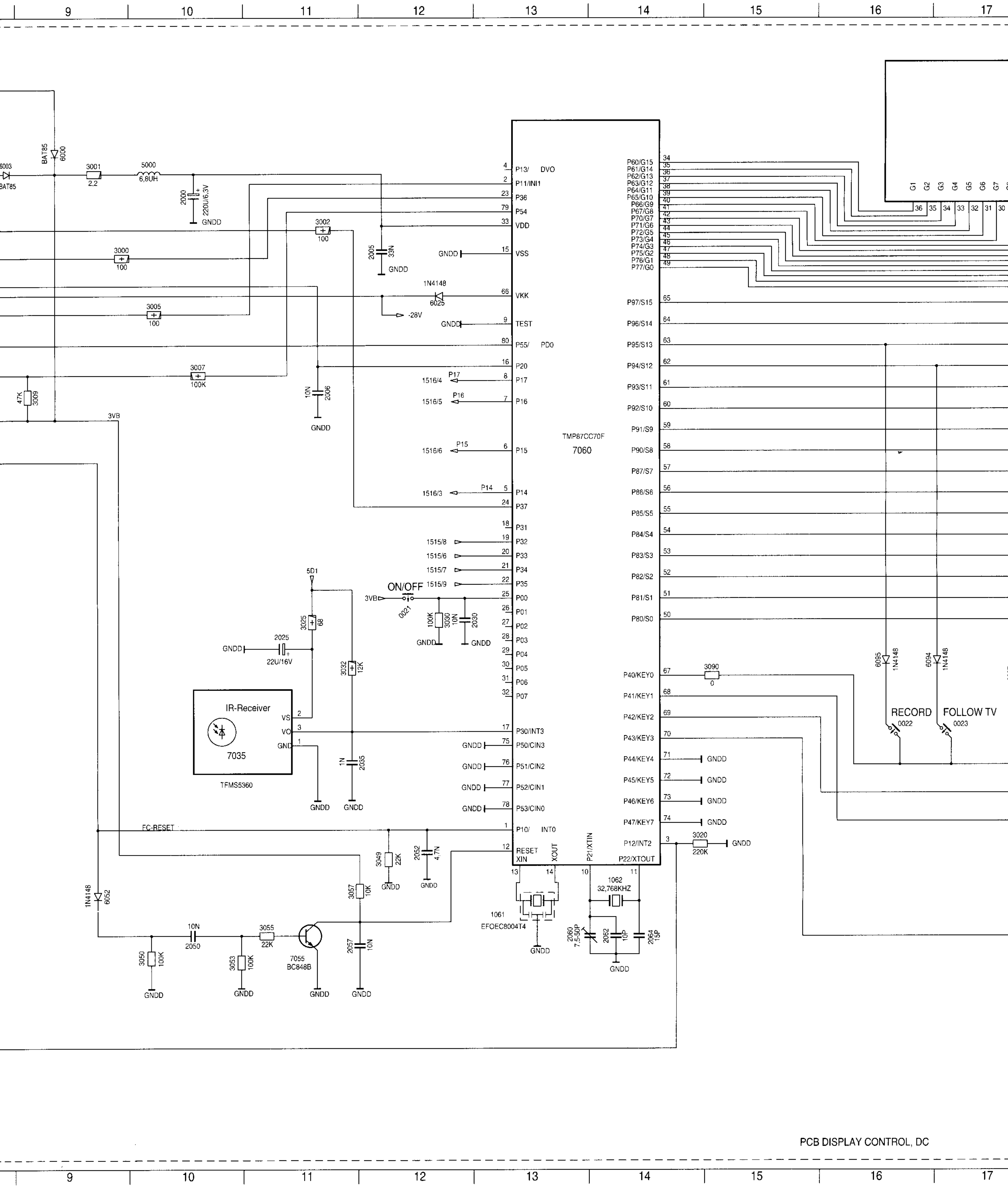
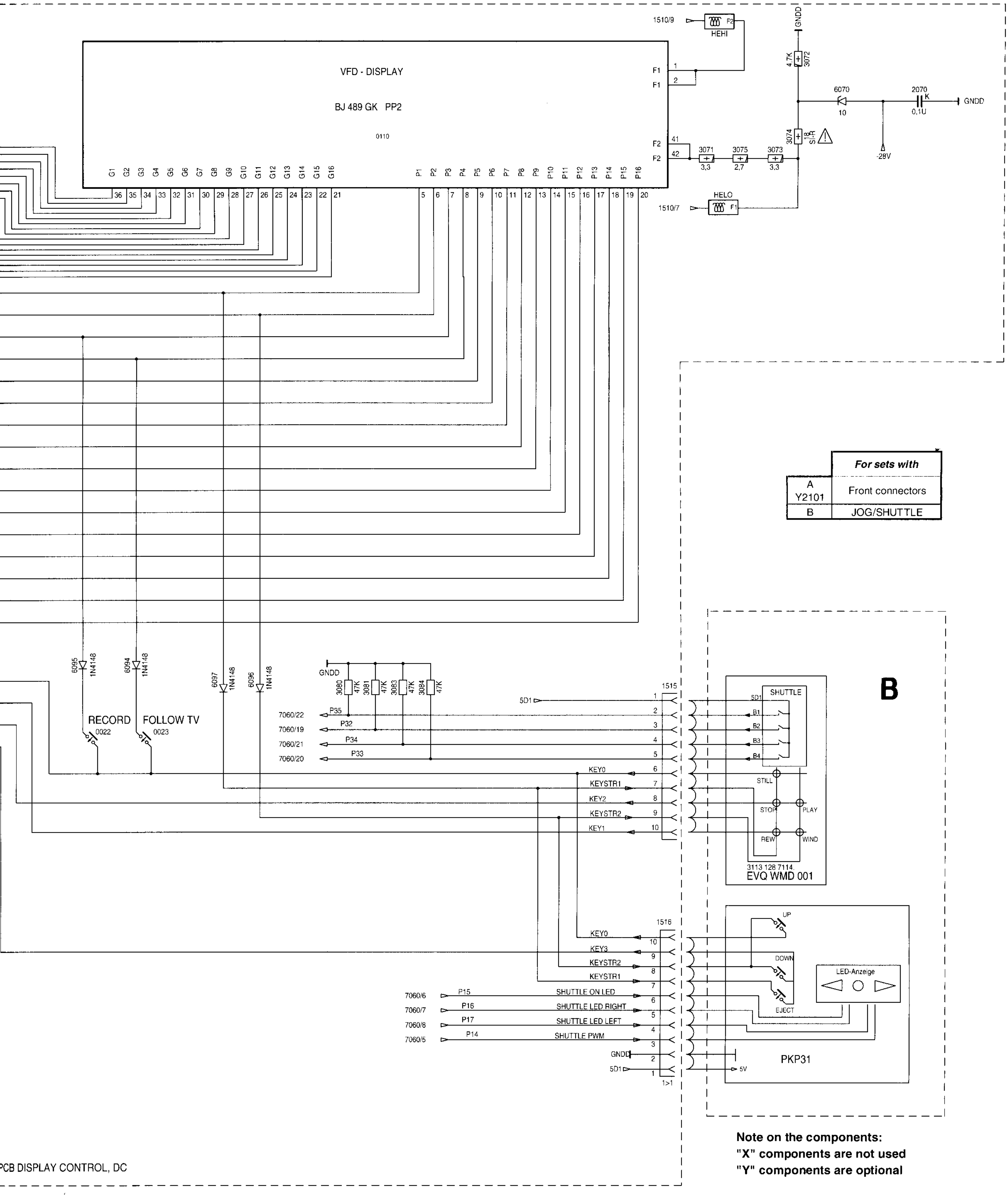
IO page 3-44
AU page 3-45
VT page 3-46
CF page 3-50
SH page 3-51
SF page 3-53
SP page 3-54
DC page 3-57...



3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
PCB MOTHERBOARD, CC
9510
1510
1 5D1
2 5VSTBY
3
4 3VB
5 -28V
6 STBY
7 F1 HELO 3073
8 14A
9 F2 HEHI 110/1
10 RESET FC-RESET
11 PREROLL EDIT2 PREROLL /EDIT2
12 SDA SDA
13 EDIT-TRIG EDIT1 EDIT-TRIGGER /EDIT1
14 SCL SCL
15 GNDE
16 SCART-CONTROL SCART-CONTROL
17 NC
18 INT BUS-INIT
19 FILAMENT CONTROL HEST
1>1
5D1
6003 BAT85
BAT85 6000
3001 2,2
5000 6,8UH
2003 10N
GNDD
2000 220U/6,3V
GNDD
3000 100
3005 100
3007 100K
7010 BC858B
47K 3009
3VB
10N
A
GNDE
1N4148 Y6100
Y 6103 1N4148
5D1
EDIT
Y 1900
Y3100 330
GNDE
Y3102 100K
Y3104 33K
GNDE
Y 7105 BC548B
GNDE
Y3105 330
X 2100 10N K
Y 2101 10N K
PCB INPUT/OUTPUT BOARD, IO
9514
Y 1514
2 VIDEO
1 GND-V
1>1
CVBS
VIDEO
Y1901
CVBS
GND-V
Y3120 75
Y 6120 6,8
Y 6123 6,8
GND-V
X 10N K 2129
AUDIO-L
Y1902
AUDIO-L
Y 3127 470
470P K Y 2127
GND-A
GND-A
470P K Y 2125
AUDIO-R
Y 1903
AUDIO-R
Y3125 470
GND-A
PCB INPUT/OUTPUT BOARD, AU
9519
Y 1519
3 GND-A
2
1
1>1
AUDIO-R AUDIO-R
AUDIO-L AUDIO-L
5D
3025
GNDD
2025 22U/16V
IR-Receiver
VS 2
VO 3
GND 1
7035
TFMS5360
FC-RESET
1N4148 6052
10N 2050
3055 22K
3050 100K
GNDD
3053 100K
GNDD
7055 BC848B


9
10
11
12
13
14
15
16
17
TMP87CC70F
7060
P13/ DVO
P11/INI1
P36
P54
VDD
VSS
VKK
TEST
P55/ PD0
P20
P17
P16
P15
P14
P37
P31
P32
P33
P34
P35
P00
P01
P02
P03
P04
P05
P06
P07
P30/INT3
P50/CIN3
P51/CIN2
P52/CIN1
P53/CIN0
P10/ INT0
RESET
XIN
XOUT
P21/XTIN
P22/XTOUT
P12/INT2
P60/G15
P61/G14
P62/G13
P63/G12
P64/G11
P65/G10
P66/G9
P67/G8
P70/G7
P71/G6
P72/G5
P73/G4
P74/G3
P75/G2
P76/G1
P77/G0
P97/S15
P96/S14
P95/S13
P94/S12
P93/S11
P92/S10
P91/S9
P90/S8
P87/S7
P86/S6
P85/S5
P84/S4
P83/S3
P82/S2
P81/S1
P80/S0
P40/KEY0
P41/KEY1
P42/KEY2
P43/KEY3
P44/KEY4
P45/KEY5
P46/KEY6
P47/KEY7
G1 G2 G3 G4 G5 G6 G7
36 35 34 33 32 31 30
BAT85
6000
6003
3001
2,2
5000
6,8UH
2000
220U/6,3V
GNDD
3002
100
3000
100
3005
100
3007
100K
2005
33N
1N4148
6025
-28V
47K
3009
3VB
10N
2006
1516/4
1516/5
1516/6
1516/3
1515/8
1515/6
1515/7
1515/9
ON/OFF
0021
100K
3030
10N
2030
5D1
3025
68
2025
22U/16V
3032
12K
IR-Receiver
VS
VO
GND
7035
TFMS5360
1N
2035
FC-RESET
3049
22K
2052
4,7N
3057
10K
2057
10N
1061
EFOEC8004T4
1062
32,768KHZ
2060
7,5-50P
2062
10P
2064
15P
3090
0
3020
220K
6095
6094
1N4148
RECORD
FOLLOW TV
0022
0023
6052
10N
2050
3055
22K
7055
BC848B
3050
100K
3053
100K
GNDD

PCB DISPLAY CONTROL, DC

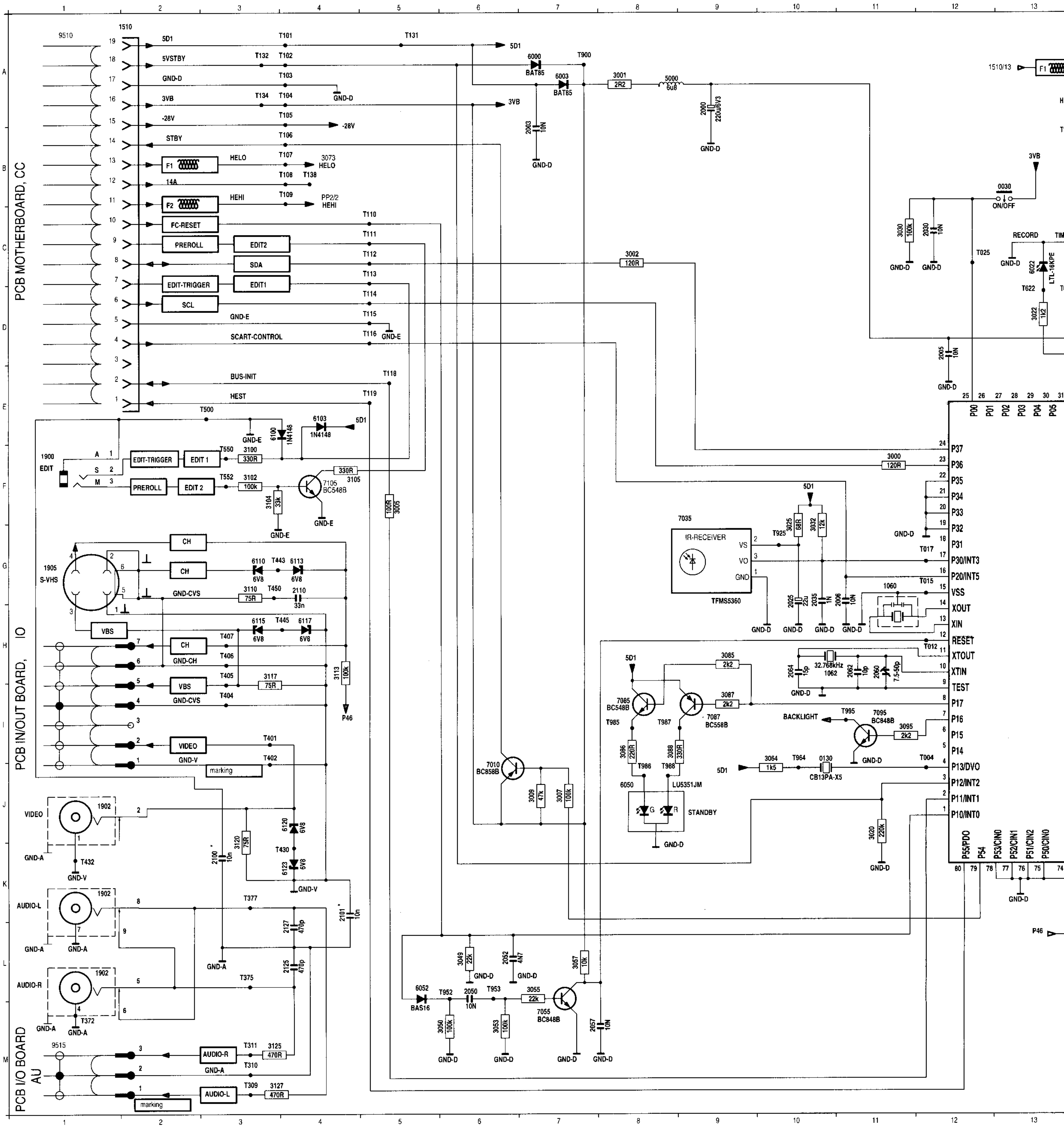

VFD - DISPLAY
BJ 489 GK PP2
0110
F1
F1
F2
F2
G1 G2 G3 G4 G5 G6 G7 G8 G9 G10 G11 G12 G13 G14 G15 G16
P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 P12 P13 P14 P15 P16
36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
1
2
41
42
1510/9
HEHI
1510/7
HELO
GNDD
4,7K
3072
6070
10
2070
0,1U
GNDD
3074
18
SI-R
3071
3,3
3075
2,7
3073
3,3
-28V
6095
1N4148
6094
1N4148
6097
1N4148
6096
1N4148
RECORD
0022
FOLLOW TV
0023
GNDD
3080 47K
3081 47K
3083 47K
3084 47K
7060/22
P35
7060/19
P32
7060/21
P34
7060/20
P33
5D1
1515
KEY0
KEYSTR1
KEY2
KEYSTR2
KEY1
SHUTTLE
5D1
B1
B2
B3
B4
STILL
STOP
PLAY
REW
WIND
3113 128 7114.
EVQ WMD 001
B
1516
KEY0
KEY3
KEYSTR2
KEYSTR1
7060/6
P15
SHUTTLE ON LED
7060/7
P16
SHUTTLE LED RIGHT
7060/8
P17
SHUTTLE LED LEFT
7060/5
P14
SHUTTLE PWM
GNDD
5D1
1>1
UP
DOWN
EJECT
LED-Anzeige
5V
PKP31
PCB DISPLAY CONTROL, DC

	For sets with
A Y2101	Front connectors
B	JOG/SHUTTLE

Note on the components:
"X" components are not used
"Y" components are optional

Display Control PDCPN3 (DC)

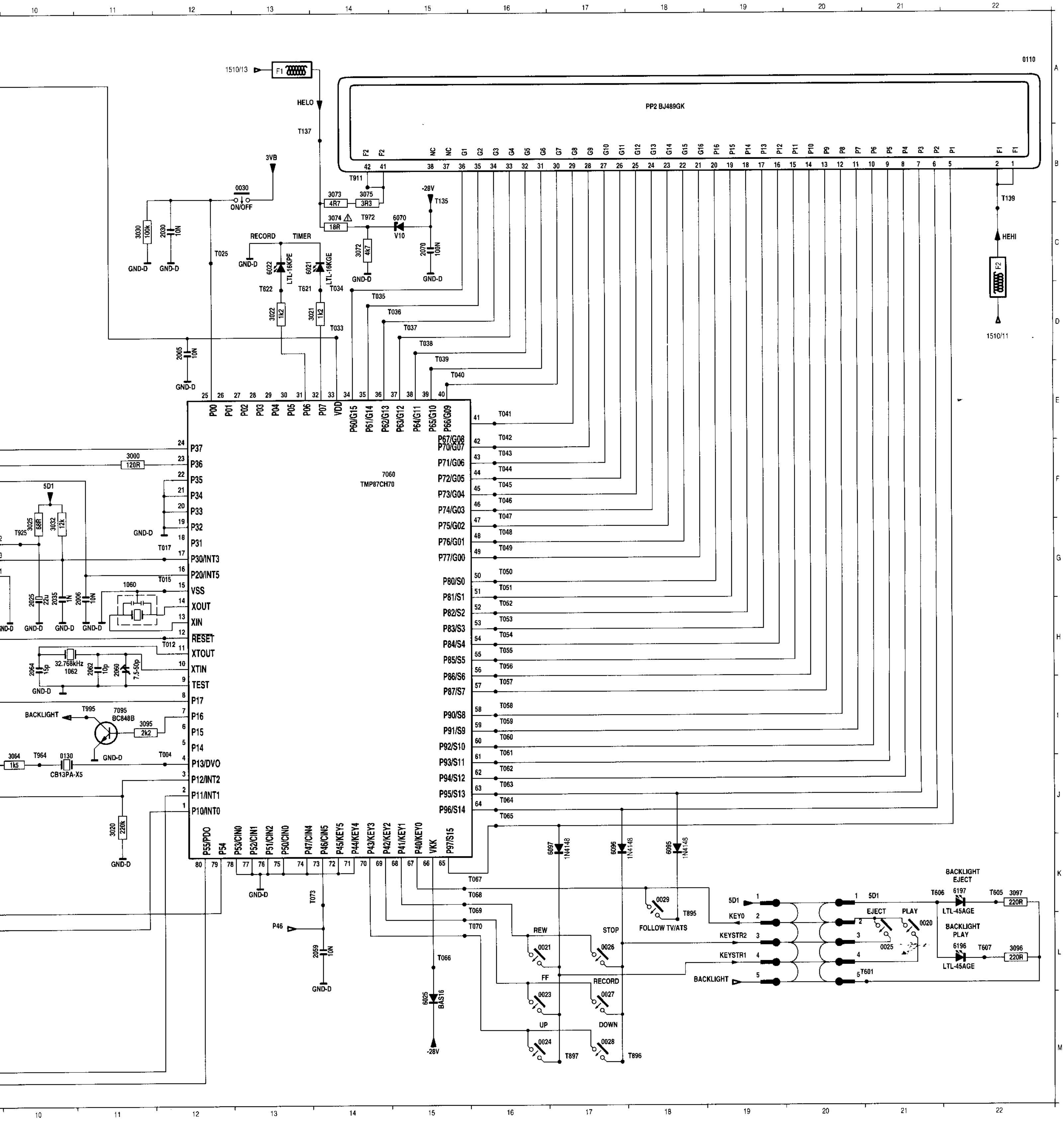
0020	L21
0021	L16
0023	M16
0024	M16
0025	L21
0026	L17
0027	M17
0028	M17
0029	K18
0030	B13
0110	A22
0130	I10
1060	H11
1062	H10
1510	A 1
1900	F 1
1902	J 1
1902	L 1
1902	K 1
1905	G 1
2000	A 9
2003	B 7
2005	D12
2006	G11
2025	G10
2030	C12
2035	G10
2050	L 6
2052	L 6
2057	M 7
2059	L14
2060	H11
2062	H11
2064	H10
2070	C15
2100	K 3
2101	K 4
2110	G 4
2125	L 4
2127	L 4
3000	F11
3001	A 8
3002	C 8
3005	F 5
3007	J 7
3009	J 7
3020	J11
3021	D14
3022	D13
3025	G10
3030	C11
3032	G10
3049	L 6
3050	M 6
3053	M 6
3055	L 7
3057	L 7
3064	I10
3072	C14
3073	B14
3074	C14
3075	B14
3085	H 9
3086	I 8
3087	I 9
3088	I 8
3095	I11
3096	L22
3097	K22
3100	F 3
3102	F 3
3104	F 3
3105	F 4
3110	G 3
3113	H 4
3117	H 3
3120	J 3
3125	M 3
3127	M 3
5000	A 8
6000	A 7
6003	A 7
6021	C14
6022	C13
6025	M15
6050	J 8
6052	L 5
6070	C15
6095	K18
6096	K17
6097	K17
6100	E 3
6103	E 4
6110	G 3
6113	G 4
6115	H 3
6117	H 4
6120	J 4
6123	K 4
6196	L22
6197	K22
7010	J 6
7035	F 9
7055	M 7
7060	F15
7085	I 8
7087	I 9
7095	I11
7105	F 4
T004	I12
T012	H12
T015	G12
T017	G12
T025	C12
T033	D14
T034	D14
T035	D14
T036	D15
T037	D15
T038	D15
T039	D15
T040	E15
T041	E16
T042	E16
T043	F16
T044	F16
T045	F16
T046	F16
T047	F16
T048	G16
T049	G16
T050	G16
T051	G16
T052	H16
T053	H16
T054	H16
T055	H16
T056	H16
T057	I16
T058	I16



1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H I J K L M
PCB MOTHERBOARD, CC
PCB IN/OUT BOARD, IO
PCB I/O BOARD AU
9510
1510
5D1
5VSTBY
GND-D
3VB
-28V
STBY
HELO
14A
HEHI
F1
F2
FC-RESET
PREROLL
EDIT2
SDA
EDIT-TRIGGER
EDIT1
SCL
GND-E
SCART-CONTROL
BUS-INIT
HEST
T101 T131 T132 T102 T103 T134 T104 T105 T106 T107 T108 T138 T109 T110 T111 T112 T113 T114 T115 T116 T118 T119
3073 HELO
PP2/2 HEHI
6000 BAT85
6003 BAT85
T900
3001 2R2
5000 6u8
2000 220u/6V3
2003 10N
3002 120R
1510/13
0030 ON/OFF
3030 100k
2030 10N
T025
RECORD
6022 LTL-16KPE
T622
3022 1k2
2005 10N
T500
1900 EDIT
EDIT-TRIGGER
EDIT 1
PREROLL
EDIT 2
T550 3100 330R
T552 3102 100k
6100 1N4148
6103 1N4148
330R 3105
7105 BC548B
3104 33k
100R 3005
3000 120R
1905 S-VHS
CH
VBS
GND-CVS
6110 6V8 T443 6113 6V8
3110 75R T450 2110 33n
6115 6V8 T445 6117 6V8
T407 T406 T405 T404
GND-CH
3117 75R
3113 100k
P46
VIDEO
GND-V
T401 T402
marking
7035 IR-RECEIVER TFMS5360
VS VO GND
T925 3025 68R 3032 12k
2025 22u 2035 1N 2006 10N
1060
T017 T015 T012
32.768kHz 1062
2064 15p 2062 10p 2060 7.5-50p
3085 2k2
3087 2k2
7085 BC548B T985
T987 7087 BC558B
3086 220R 3088 330R
T986 T988
6050 LU5351JM
STANDBY
BACKLIGHT T995 7095 BC848B
3095 2k2
5D1 3064 1k5 T964 0130 CB13PA-X5
T004
7010 BC858B
3009 47k 3007 100k
3020 220k
P00 P01 P02 P03 P04 P05
P37 P36 P35 P34 P33 P32 P31 P30/INT3 P20/INT5 VSS XOUT XIN RESET XTOUT XTIN TEST P17 P16 P15 P14 P13/DVO P12/INT2 P11/INT1 P10/INT0
P55/PDO P54 P53/CIN0 P52/CIN1 P51/CIN2 P50/CIN0
VIDEO 1902 T432
AUDIO-L 1902
AUDIO-R 1902 T372
GND-A
3120 75R
2100 10n
6120 6V8 T430 6123 6V8
T377 2127 470p
T375 2125 470p
2101 10n
6052 BAS16 T952 2050 10N T953 3055 22k
3049 22k 2052 4N7
3050 100k 3053 100k
7055 BC848B
3057 10K 2057 10N
9515
AUDIO-R T311 3125 470R
T310
AUDIO-L T309 3127 470R

*..... option

6123 K 4	7085 I 8	T017 G12	T038 D15	T045 F16	T052 H16	T059 I16	T066 L15	T102 A 4	T109 B 4	T116 D 5	T137 B13	T375 L 3	T407 H 3	T550 F 3	T622 D13	T952 L 6	T988 J 8
6196 L22	7087 I 9	T025 C12	T039 D15	T046 F16	T053 H16	T060 I16	T067 K16	T103 A 4	T110 C 5	T118 E 5	T138 B 4	T377 K 3	T430 K 4	T552 F 3	T895 L18	T953 L 6	T995 I11
6197 K22	7095 I11	T033 D14	T040 E15	T047 F16	T054 H16	T061 I16	T068 K16	T104 A 4	T111 C 5	T119 E 5	T139 B22	T401 I 3	T432 K 1	T601 L21	T896 M18	T964 I10	
7010 J 6	7105 F 4	T034 D14	T041 E16	T048 G16	T055 H16	T062 J16	T069 K16	T105 A 4	T112 C 5	T131 A 5	T309 M 3	T402 I 3	T443 G 3	T605 K22	T897 M17	T972 C14	
7035 F 9	T004 I12	T035 D14	T042 E16	T049 G16	T056 H16	T063 J16	T070 L16	T106 B 4	T113 C 5	T132 A 3	T310 M 3	T404 I 3	T445 H 4	T606 K21	T900 A 7	T985 I 8	
7055 M 7	T012 H12	T036 D15	T043 F16	T050 G16	T057 I16	T064 J16	T073 K14	T107 B 4	T114 D 5	T134 A 3	T311 M 3	T405 H 3	T450 G 3	T607 L22	T911 B14	T986 J 8	
7060 F15	T015 G12	T037 D15	T044 F16	T051 G16	T058 I16	T065 J16	T101 A 4	T108 B 4	T115 D 5	T135 B15	T372 M 1	T406 H 3	T500 E 3	T621 D13	T925 G10	T987 I 8	


0110
PP2 BJ489GK
1510/13
F1
HELO
T137
3VB
0030
ON/OFF
3073 4R7
3075 3R3
T911
-28V
T135
3074 18R
T972
6070 V10
3030 100k
2030 10N
GND-D
RECORD
TIMER
6022 LTL-16KPE
6021 LTL-16KGE
T622
T621
T034
3072 4k7
2070 100N
T025
3022 1k2
3021 1k2
T033
T035
T036
T037
T038
T039
T040
2005 10N
T139
HEHI
F2
1510/11
7060
TMP87CH70
P00 P01 P02 P03 P04 P05 P06 P07 VDD
P60/G15 P61/G14 P62/G13 P63/G12 P64/G11 P65/G10 P66/G09
P67/G08 P70/G07 P71/G06 P72/G05 P73/G04 P74/G03 P75/G02 P76/G01 P77/G00
P80/S0 P81/S1 P82/S2 P83/S3 P84/S4 P85/S5 P86/S6 P87/S7
P90/S8 P91/S9 P92/S10 P93/S11 P94/S12 P95/S13 P96/S14
P37 P36 P35 P34 P33 P32 P31 P30/INT3 P20/INT5 VSS XOUT XIN RESET XTOUT XTIN TEST P17 P16 P15 P14 P13/DVO P12/INT2 P11/INT1 P10/INT0
P55/PDO P54 P53/CIN0 P52/CIN1 P51/CIN2 P50/CIN0 P47/CIN4 P46/CIN5 P45/KEY5 P44/KEY4 P43/KEY3 P42/KEY2 P41/KEY1 P40/KEY0 VKK P97/S15
T041 T042 T043 T044 T045 T046 T047 T048 T049 T050 T051 T052 T053 T054 T055 T056 T057 T058 T059 T060 T061 T062 T063 T064 T065
3000 120R
5D1
3025 68R
3032 12k
T925
T017
T015
1060
2025 22u
2035 1N
2006 10N
T012
2064 15p
32.768kHz 1062
2062 10p
2060 7.5-50p
BACKLIGHT
T995
7095 BC848B
3095 2k2
3064 1k5
T964
0130 CB13PA-X5
T004
3020 220k
6097 1N4148
6096 1N4148
6095 1N4148
T067 T068 T069 T070
T073
P46
2059 10N
T066
6025 BAS16
REW 0021
STOP 0026
FF 0023
RECORD 0027
UP 0024
DOWN 0028
T897
T896
0029
T895
FOLLOW TV/ATS
5D1
KEY0
KEYSTR2
KEYSTR1
BACKLIGHT
EJECT
PLAY
0020
0025
T601
BACKLIGHT EJECT
T606 6197 LTL-45AGE
T605 3097 220R
BACKLIGHT PLAY
6196 LTL-45AGE
T607 3096 220R
A B C D E F G H I J K L M
10 11 12 13 14 15 16 17 18 19 20 21 22

Interconnections:

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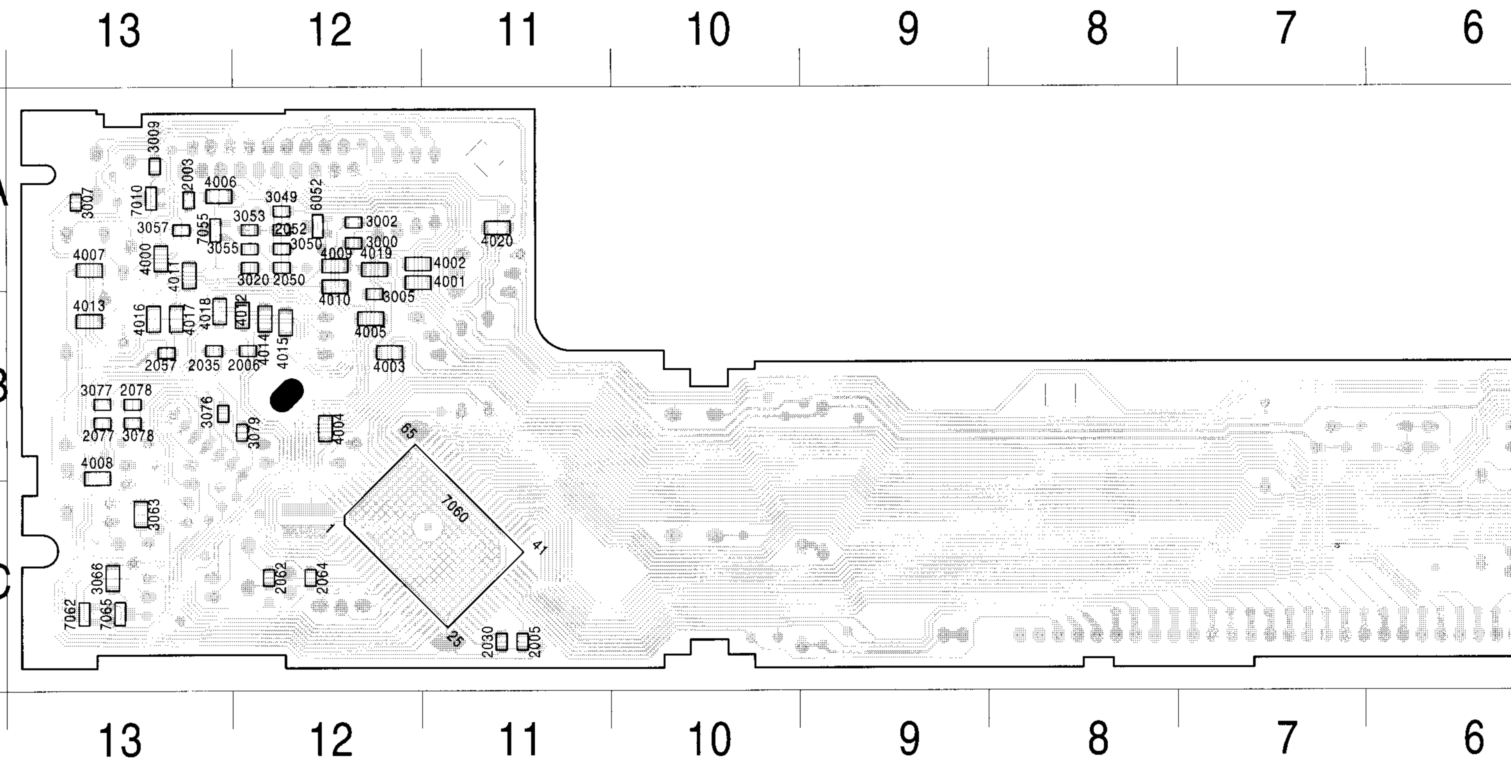
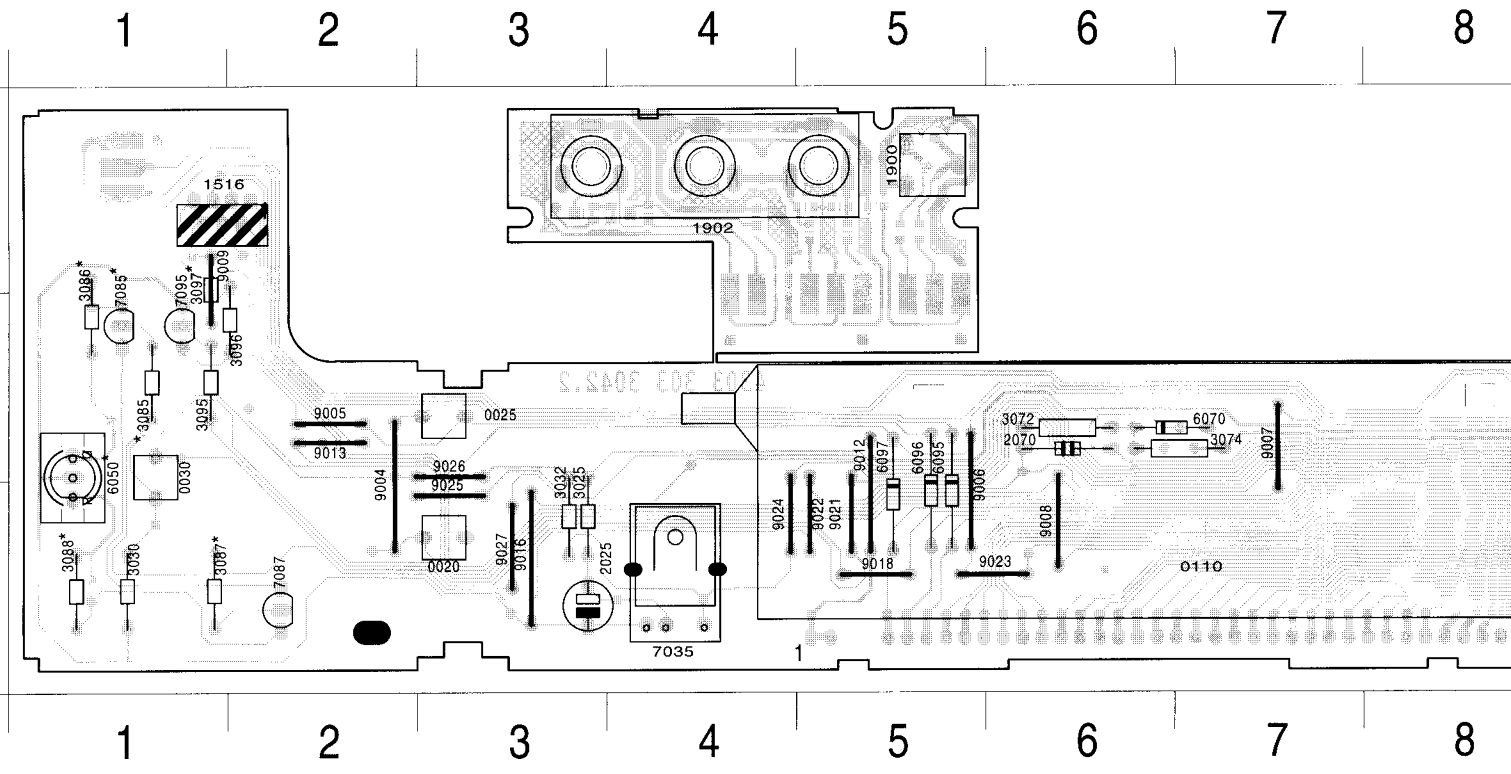
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP page 3-54
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC page 3-57...

Display Control PDCPN2

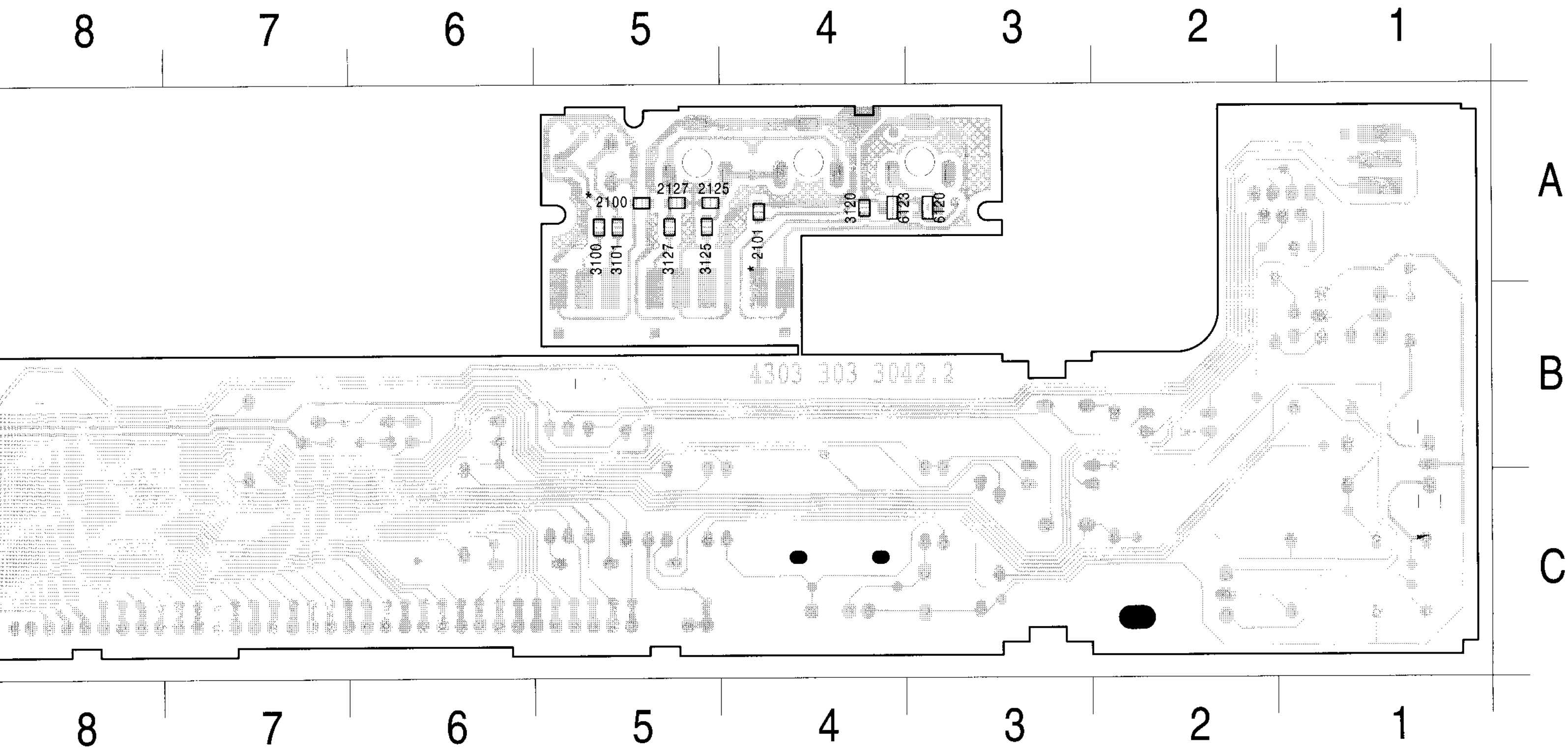
6052 A 12	4013 B 13	4005 B 12	3120 A 4	3063 C 13	3007 A 13	2078 B 13	2030 C 11	T985 A 1	T953 A 12	T552 A 5	T402
6120 A 3	4014 B 12	4006 A 13	3125 A 5	3066 C 13	3009 A 13	2100 A 5	2035 B 13	T986 B 1	T962 C 13	T895 A 1	T420
6123 A 4	4015 B 12	4007 A 13	3127 A 5	3076 B 13	3020 A 12	2101 A 4	2050 A 12	T987 C 1	T963 C 13	T896 A 2	T432
7010 A 13	4016 B 13	4008 B 13	4000 A 13	3077 B 13	3049 A 12	2125 A 5	2052 A 12	T988 C 1	T965 C 13	T897 C 6	T500
7055 A 13	4017 B 13	4009 A 12	4001 A 12	3078 B 13	3050 A 12	2127 A 5	2057 B 13	T997 A 1	T966 C 13	T900 B 1	T531
7060 C 11	4018 A 13	4010 A 12	4002 A 12	3079 B 12	3053 A 12	3000 A 12	2062 C 12	2003 A 13	T972 B 6	T911 C 9	T532
7062 C 13	4019 A 12	4011 A 13	4003 B 12	3100 A 5	3055 A 12	3002 A 12	2064 C 12	2005 C 11	T976 B 13	T925 C 4	T533
7065 C 13	4020 A 11	4012 B 12	4004 B 12	3101 A 5	3057 A 13	3005 A 12	2077 B 13	2006 B 12	T979 B 12	T952 A 12	T550


13
12
11
10
9
8
7
6
A
B
C
3009
3007
2003
4006
3049
6052
7010
3057
7055
3053
2052
3002
3000
3055
3050
4009
4019
4020
4007
4000
4011
3020
2050
4002
4001
4010
6005
4013
4016
4017
4018
4012
4014
4005
2057
2035
2006
4015
4003
3077
2078
3076
2077
3078
3079
4004
65
7060
4008
3063
1
41
3066
2062
2064
7062
7065
25
2030
2005

0010 B 12	0024 C 10	0101 C 4	1510 A 12	1902 A 5	2070 B 6	3032 C 3	3073 C 9	3081 B 13	3086 B 1	3096 A 2	6003 A 13	6095 C 5	7085 B 1	9001 A 11	9005
0020 C 3	0025 B 3	0110 C 5	1516 A 2	2000 C 13	3001 A 13	3062 C 13	3074 B 6	3083 B 13	3087 C 1	3097 A 1	6025 B 11	6096 C 5	7087 C 2	9002 A 11	9006
0021 A 13	0030 B 1	1060 C 12	1517 C 13	2025 C 3	3025 C 3	3065 C 13	3075 C 9	3084 C 13	3088 C 1	5000 A 13	6050 B 1	6097 C 5	7095 B 1	9003 B 13	9007
0023 B 10	0100 B 1	1062 C 12	1900 A 5	2060 C 12	3030 C 1	3072 B 6	3080 B 13	3085 B 1	3095 B 1	6000 B 13	6070 B 7	7035 C 4	9000 A 11	9004 B 2	9008


1
2
3
4
5
6
7
8
A
B
C
1516
1902
1900
3086*
7085*
7095*
3097*
9009
3096
3085
3095
9005
9013
0025
9004
9026
9025
6050
0030
3032
3025
9027
9016
0020
2025
7035
1
3088*
3030
3087*
7087
9024
9022
9021
9012
6097
6096
6095
9006
9018
9023
9008
3072
2070
6070
3074
9007
0110

78	B	13
00	A	5
01	A	4
25	A	5
27	A	5
00	A	12
02	A	12
05	A	12
2030	C	11
2035	B	13
2050	A	12
2052	A	12
2057	B	13
2062	C	12
2064	C	12
2077	B	13
T985	A	1
T986	B	1
T987	C	1
T988	C	1
T997	A	1
2003	A	13
2005	C	11
2006	B	12
T953	A	12
T962	C	13
T963	C	13
T965	C	13
T966	C	13
T972	B	6
T976	B	13
T979	B	12
T552	A	5
T895	A	1
T896	A	2
T897	C	6
T900	B	1
T911	C	9
T925	C	4
T952	A	12
T402	A	4
T420	A	3
T432	A	4
T500	A	5
T531	A	5
T532	A	5
T533	A	5
T550	A	5
T139	C	5
T309	A	5
T310	A	4
T311	A	5
T372	A	5
T375	A	4
T377	A	4
T401	A	4
T116	C	13
T118	A	12
T119	A	11
T131	B	13
T132	C	12
T135	B	9
T137	B	7
T138	B	2
T108	A	13
T109	B	9
T110	A	11
T111	A	1
T112	A	12
T113	A	1
T114	A	12
T115	A	1
T072	B	13
T101	B	2
T102	A	13
T103	C	3
T104	B	4
T105	B	7
T106	A	13
T107	B	10
T064	C	5
T065	C	5
T066	B	11
T067	C	2
T068	B	2
T069	B	10
T070	C	10
T071	B	13
T056	C	6
T057	C	6
T058	C	6
T059	C	6
T060	C	5
T061	C	5
T062	C	5
T063	C	5
T048	C	7
T049	C	7
T050	C	7
T051	C	6
T052	C	6
T053	C	6
T054	C	6
T055	C	6
T040	C	8
T041	C	7
T042	C	7
T043	C	7
T044	C	7
T045	C	7
T046	C	7
T047	C	7
T025	C	1
T033	C	11
T034	C	8
T035	C	10
T036	C	9
T037	C	8
T038	C	8
T039	C	8
T001	A	12
T012	C	12
T015	B	6
T017	C	4
T019	C	13
T020	C	13
T021	C	13
T022	B	13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4
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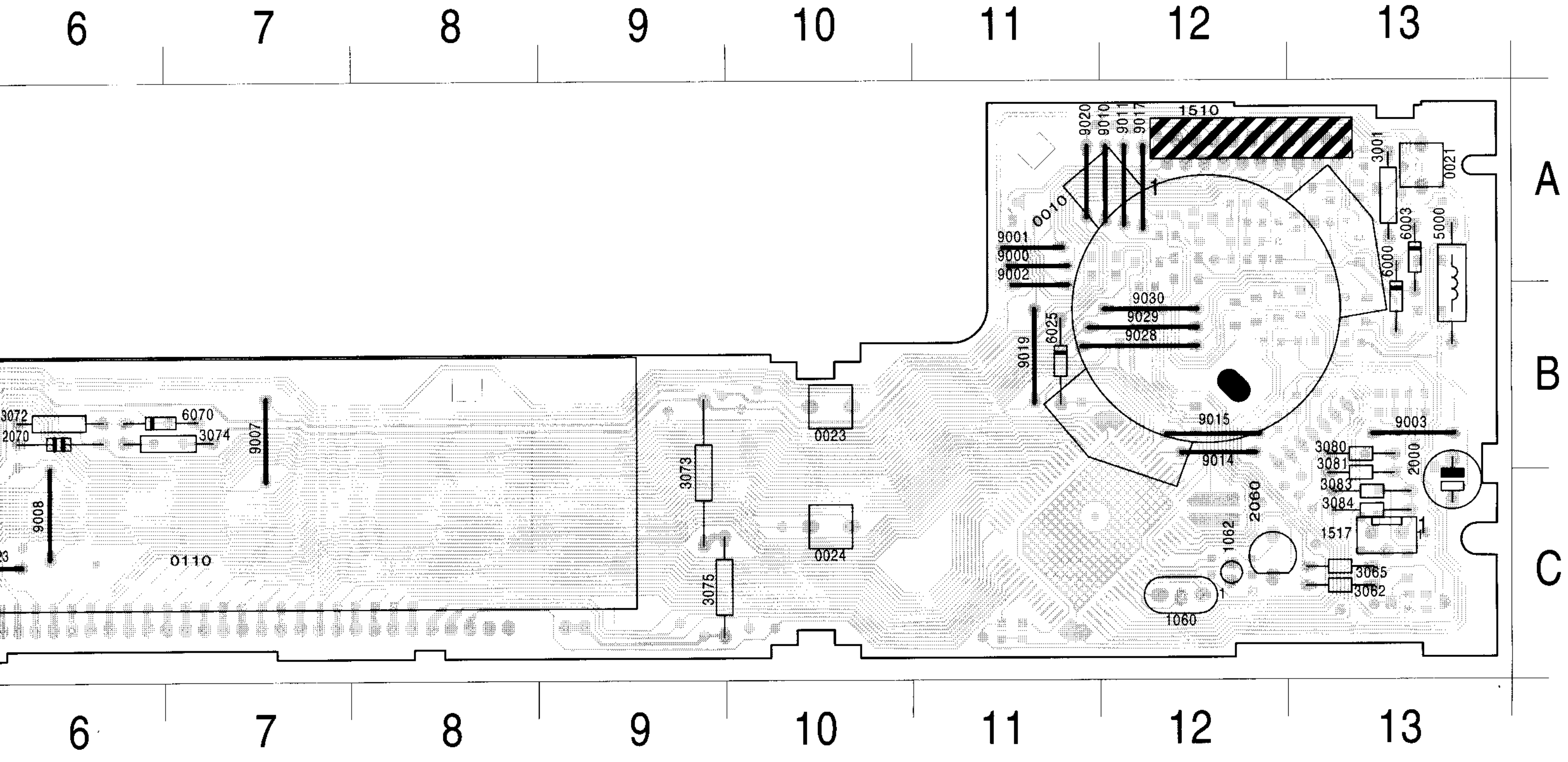
2
1
A
B
C
2100
2127
2125
3120
6123
6120
3100
3101
3127
3125
2101
4303 303 3042.2

096	A	2
097	A	1
000	A	13
000	B	13
6003	A	13
6025	B	11
6050	B	1
6070	B	7
6095	C	5
6096	C	5
6097	C	5
7035	C	4
7085	B	1
7087	C	2
7095	B	1
9000	A	11
9001	A	11
9002	A	11
9003	B	13
9004	B	2
9005	B	2
9006	C	5
9007	B	7
9008	C	6
9009	A	1
9010	A	12
9011	A	12
9012	C	5
9013	B	2
9014	B	12
9015	B	12
9016	C	3
9017	A	12
9018	C	5
9019	B	11
9020	A	11
9021	C	5
9022	C	5
9023	C	5
9024	C	4
9025	B	2
9026	B	2
9027	C	3
9028	B	12
9029	B	12
9030	B	12


6
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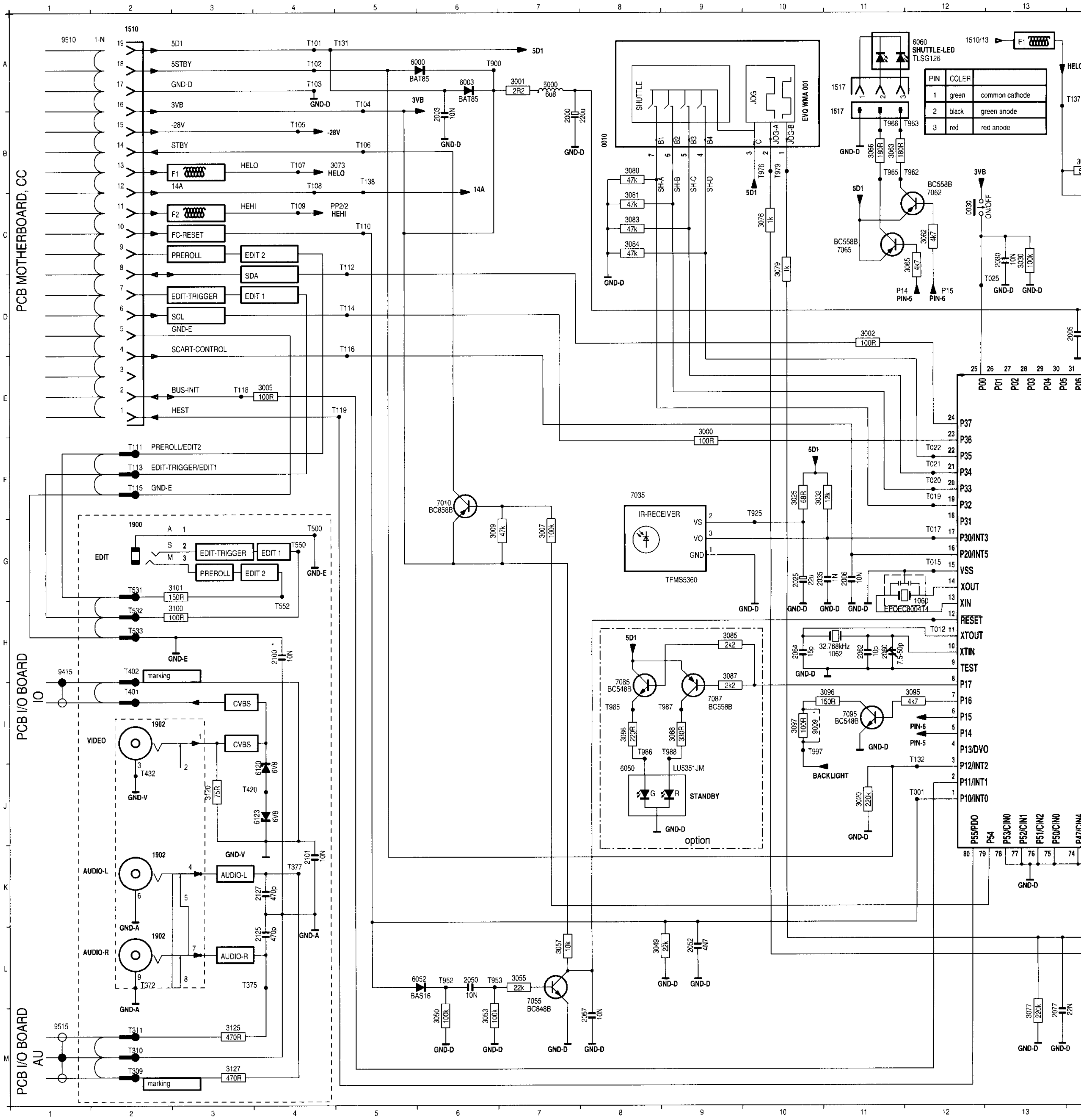
12
13
A
B
C
1510
9020
9010
9011
9017
3001
0021
0010
9001
9000
9002
6003
5000
6000
9030
9029
9028
6025
9019
3072
6070
2070
3074
9007
0023
3073
9015
9003
9014
3080
3081
2000
3083
3084
2060
1062
1517
9008
0110
0024
3075
3065
3062
1060

Display Control PDCPN2 (DC)

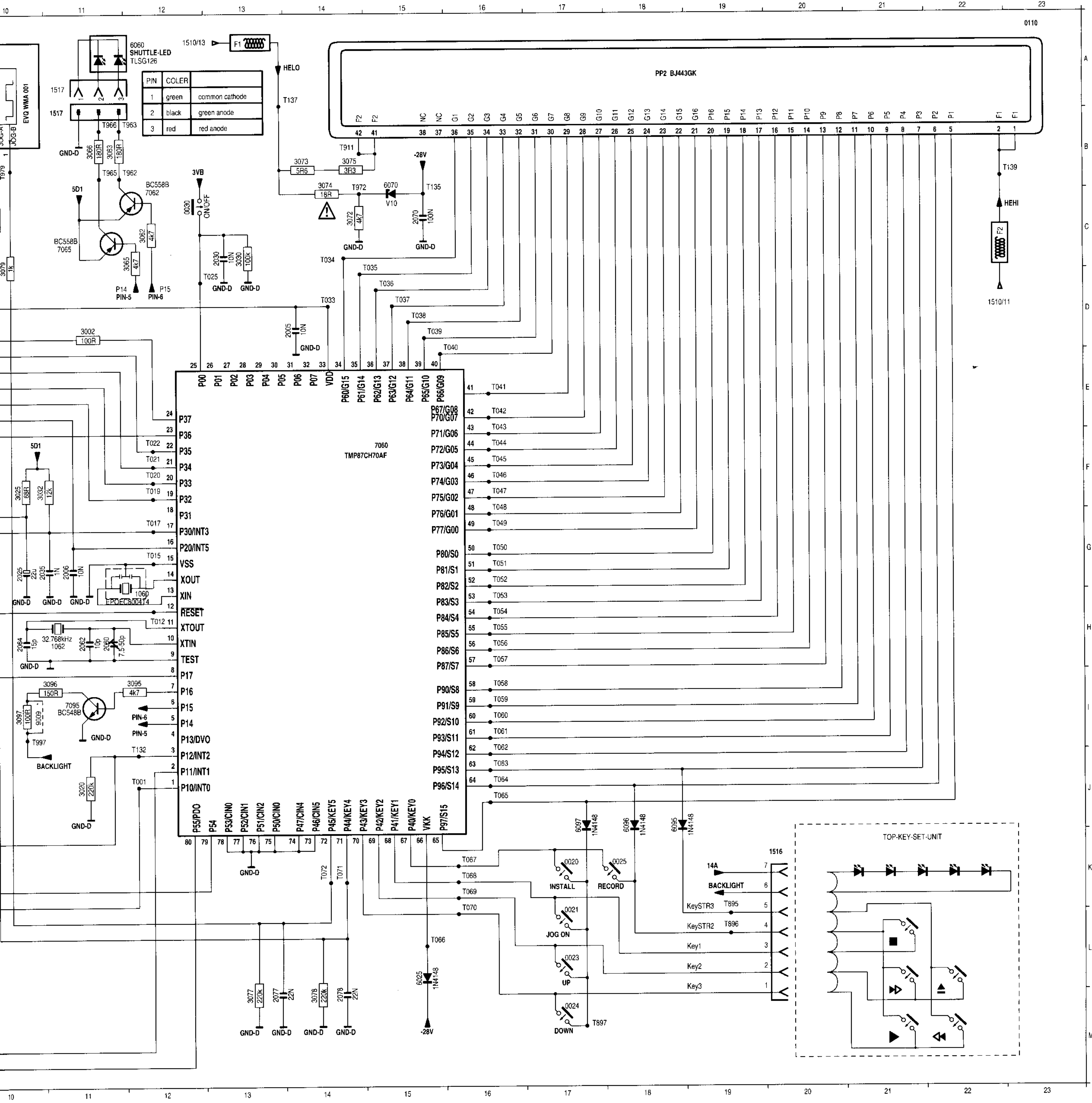
0010	B 8
0020	K17
0021	L17
0023	L17
0024	M17
0025	K18
0030	C12
0110	A23
1060	G12
1062	H11
1510	A 2
1516	K20
1517	B11
1900	G 2
1902	I 2
1902	K 2
1902	L 2
2000	B 7
2003	B 6
2005	D14
2006	G11
2025	G10
2030	C13
2035	G10
2050	L 6
2052	L 9
2057	M 8
2060	H11
2062	H11
2064	H10
2070	C15
2077	M13
2078	M14
2100	H 4
2101	K 4
2125	L 4
2127	K 4
3000	E 9
3001	A 7
3002	D11
3005	E 4
3007	G 7
3009	G 6
3020	J11
3025	F10
3030	C13
3032	F10
3049	L 8
3050	M 6
3053	M 6
3055	L 7
3057	L 7
3062	C12
3063	B11
3065	C12
3066	B11
3072	C14
3073	B14
3074	B14
3075	B14
3076	C10
3077	M13
3078	M14
3079	C10
3080	B 8
3081	C 8
3083	C 8
3084	C 8
3085	H 9
3086	I 8
3087	H 9
3088	I 9
3095	I12
3096	I11
3097	I10
3100	H 3
3101	G 3
3120	J 3
3125	M 3
3127	M 3
5000	A 7
6000	A 6
6003	A 6
6025	L15
6050	J 8
6052	L 6
6070	B15
6095	J18
6096	J18
6097	J17
6120	J 3
6123	J 4
7010	F 6
7035	F 8
7055	L 7
7060	F15
7062	B12
7065	C11
7085	I 8
7087	I 9
7095	I11
9009	I10
T001	J12
T012	H12
T015	G12
T017	G12
T019	F12
T020	F12
T021	F12
T022	F12
T025	D13
T033	D14
T034	C14
T035	C15
T036	D15
T037	D15
T038	D15
T039	D15
T040	D16
T041	E16
T042	E16
T043	E16
T044	F16
T045	F16
T046	F16
T047	F16
T048	F16
T049	G16
T050	G16
T051	G16
T052	G16
T053	H16
T054	H16
T055	H16
T056	H16
T057	H16
T058	I16
T059	I16
T060	I16
T061	I16



PCB MOTHERBOARD, CC
PCB I/O BOARD IO
PCB I/O BOARD AU
9510
1-N
1510
5D1
5STBY
GND-D
3VB
-28V
STBY
F1
HELO
14A
F2
HEHI
FC-RESET
PREROLL
EDIT 2
SDA
EDIT-TRIGGER
EDIT 1
SCL
GND-E
SCART-CONTROL
BUS-INIT
HEST
PREROLL/EDIT2
EDIT-TRIGGER/EDIT1
EDIT
1900
GND-E
9415
marking
CVBS
VIDEO
1902
GND-V
AUDIO-L
AUDIO-R
GND-A
9515
6000 BAT85
6003 BAT85
3001 2R2
5000 6u8
2000 220u
2003 10N
PP2/2
SHUTTLE
JOG
EVO WMA 001
0010
SH-A
SH-B
SH-C
SH-D
JOG-A
JOG-B
3080 47k
3081 47k
3083 47k
3084 47k
6060 SHUTTLE-LED TLSG126
1510/13
PIN
COLER
1 green common cathode
2 black green anode
3 red red anode
1517
3066 180R
3063 180R
BC558B 7062
BC558B 7065
3062 4k7
3065 4k7
P14 PIN-5
P15 PIN-6
0030 ON/OFF
2030 10N
3030 100k
3002 100R
3000 100R
7010 BC858B
3009 47k
3007 100k
7035 IR-RECEIVER
TFMS5360
3025 68R
3032 12k
2025 22u
2035 1N
2006 10N
1060 EPOEC8004T4
32.768kHz 1062
2064 15p
2062 10p
2060 7.5-50p
3076 1k
3079 1k
3085 2k2
3087 2k2
7085 BC548B
7087 BC558B
3086 220R
3088 330R
6050 LU5351JM
STANDBY
option
3096 150R
3095 4k7
7095 BC548B
3097 100R
9009
BACKLIGHT
3020 220k
P37
P36
P35
P34
P33
P32
P31
P30/INT3
P20/INT5
VSS
XOUT
XIN
RESET
XTOUT
XTIN
TEST
P17
P16
P15
P14
P13/DVO
P12/INT2
P11/INT1
P10/INT0
P00
P01
P02
P03
P04
P05
P55/PDO
P54
P53/CIN0
P52/CIN1
P51/CIN2
P50/CIN0
2100 10N
2101 10N
6120 6V8
6123 6V8
3120 75R
2127 470p
2125 470p
3101 150R
3100 100R
3125 470R
3127 470R
3057 10k
3049 22k
2052 4N7
6052 BAS16
2050 10N
3055 22k
7055 BC848B
3050 100k
3053 100k
2067 10N
3077 220k
2077 22N

*....optio

	18
	19
	I11
	I10
	J12
	H12
	G12
T017	G12
T019	F12
T020	F12
T021	F12
T022	F12
T025	D13
T033	D14
T034	C14
T035	C15
T036	D15
T037	D15
T038	D15
T039	D15
T040	D16
T041	E16
T042	E16
T043	E16
T044	F16
T045	F16
T046	F16
T047	F16
T048	F16
T049	G16
T050	G16
T051	G16
T052	G16
T053	H16
T054	H16
T055	H16
T056	H16
T057	H16
T058	I16
T059	I16
T060	I16
T061	I16
T062	I16
T063	J16
T064	J16
T065	J16
T066	L15
T067	K16
T068	K16
T069	K16
T070	K16
T071	K14
T072	K14
T101	A 4
T102	A 4
T103	A 4
T104	A 5
T105	B 4
T106	B 5
T107	B 4
T108	B 4
T109	C 4
T110	C 5
T111	F 2
T112	C 5
T113	F 2
T114	D 5
T115	F 2
T116	D 5
T118	E 3
T119	E 5
T131	A 5
T132	I12
T135	B15
T137	A14
T138	B 5
T139	B23
T309	M 2
T310	M 2
T311	M 2
T372	L 2
T375	L 3
T377	K 4
T401	I 2
T402	H 2
T420	J 3
T432	J 2
T500	G 4
T531	G 2
T532	H 2
T533	H 2
T550	G 4
T552	H 4
T895	K19
T896	L19
T897	M17
T900	A 6
T911	B14
T925	F10
T952	L 6
T953	L 6
T962	B12
T963	B12
T965	B11
T966	B11
T972	B14
T976	B10
T979	B10
T985	I 8
T986	I 8
T987	I 9
T988	I 9
T997	I10



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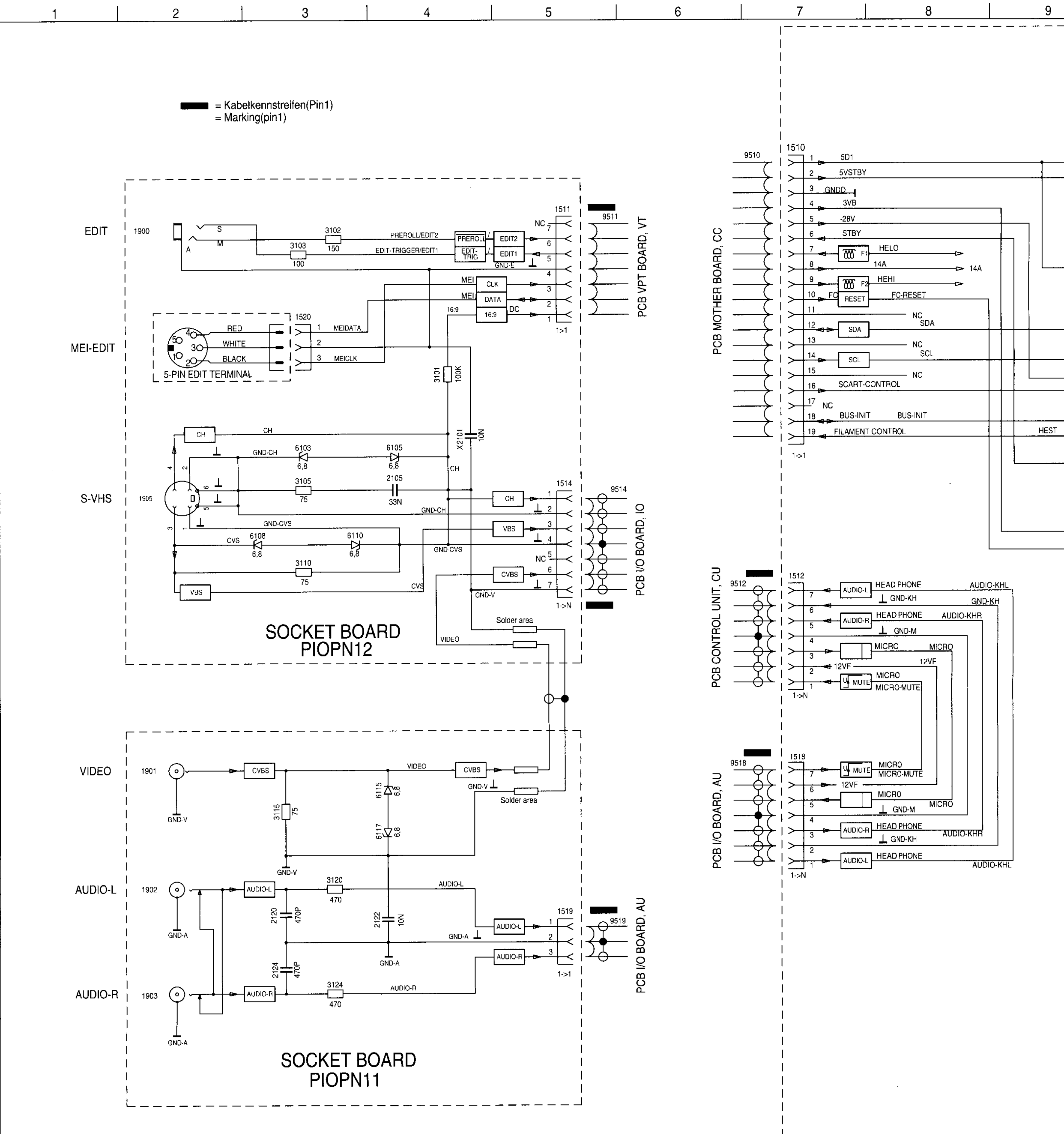
11
12
13
14
15
16
17
18
19
20
21
22
23
0110
6060
SHUTTLE-LED
TLSG126
1510/13
F1
HELO
PP2 BJ443GK
PIN
COLER
1
green
common cathode
2
black
green anode
3
red
red anode
1517
T966
T963
GND-D
3066
180R
3063
180R
T965
T962
5D1
BC558B
7062
BC558B
7065
3062
4k7
3065
4k7
P14
PIN-5
P15
PIN-6
EVQ WMA 001
JOG-B
T979
3079
1k
T137
T911
3073
5R6
3075
3R3
-28V
3074
18R
T972
6070
V10
T135
3VB
0030
ON/OFF
3072
4k7
2070
100N
GND-D
2030
10N
3030
100k
T025
T034
T035
T036
T037
T038
T039
T040
T033
2005
10N
T139
HEHI
F2
1510/11
3002
100R
7060
TMP87CH70AF
P00
P01
P02
P03
P04
P05
P06
P07
VDD
P60/G15
P61/G14
P62/G13
P63/G12
P64/G11
P65/G10
P66/G09
P67/G08
P70/G07
P71/G06
P72/G05
P73/G04
P74/G03
P75/G02
P76/G01
P77/G00
P80/S0
P81/S1
P82/S2
P83/S3
P84/S4
P85/S5
P86/S6
P87/S7
P90/S8
P91/S9
P92/S10
P93/S11
P94/S12
P95/S13
P96/S14
P37
P36
P35
P34
P33
P32
P31
P30/INT3
P20/INT5
VSS
XOUT
XIN
RESET
XTOUT
XTIN
TEST
P17
P16
P15
P14
P13/DVO
P12/INT2
P11/INT1
P10/INT0
P55/PDO
P54
P53/CIN0
P52/CIN1
P51/CIN2
P50/CIN0
P47/CIN4
P46/CIN5
P45/KEY5
P44/KEY4
P43/KEY3
P42/KEY2
P41/KEY1
P40/KEY0
VKK
P97/S15
T041
T042
T043
T044
T045
T046
T047
T048
T049
T050
T051
T052
T053
T054
T055
T056
T057
T058
T059
T060
T061
T062
T063
T064
T065
T022
T021
T020
T019
T017
T015
T012
3025
68R
3032
12k
2025
22u
2035
1N
2006
10N
1060
EPOEC800414
2064
15p
32.768kHz
1062
2062
10p
2060
7.5-50p
3096
150R
3095
4k7
7095
BC548B
3097
100R
9009
T997
BACKLIGHT
PIN-6
PIN-5
T132
T001
3020
220k
T072
T071
T067
T068
T069
T070
T066
6025
1N4148
-28V
3077
220k
2077
22N
3078
220k
2078
22N
6097
1N4148
6096
1N4148
6095
1N4148
0020
INSTALL
0025
RECORD
0021
JOG ON
0023
UP
0024
DOWN
T897
1516
14A
BACKLIGHT
KeySTR3
T895
KeySTR2
T896
Key1
Key2
Key3
TOP-KEY-SET-UNIT
A
B
C
D
E
F
G
H
I
J
K
L
M

Interconnections:

PS page 3-27	SE page 3-35	DE page 3-38	VP page 3-41	VT page 3-46	SF page 3-53
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP page 3-54
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC page 3-57...

*....option

isplay Control PDCPN1 (DC)


= Kabelkennstreifen(Pin1)
= Marking(pin1)
EDIT
MEI-EDIT
S-VHS
5-PIN EDIT TERMINAL
SOCKET BOARD
PIOPN12
VIDEO
AUDIO-L
AUDIO-R
SOCKET BOARD
PIOPN11
PCB VPT BOARD, VT
PCB I/O BOARD, IO
PCB I/O BOARD, AU
PCB MOTHER BOARD, CC
PCB CONTROL UNIT, CU
PCB I/O BOARD, AU
1510
5D1
5VSTBY
GNDD
3VB
-28V
STBY
HELO
14A
HEHI
FC-RESET
SDA
SCL
SCART-CONTROL
BUS-INIT
FILAMENT CONTROL
HEST
HEAD PHONE
AUDIO-KHL
GND-KH
AUDIO-KHR
GND-M
MICRO
12VF
MICRO-MUTE
Solder area
PREROLL/EDIT2
EDIT-TRIGGER/EDIT1
MEIDATA
MEICLK
GND-CH
GND-CVS
GND-V
GND-A

Interconnections:

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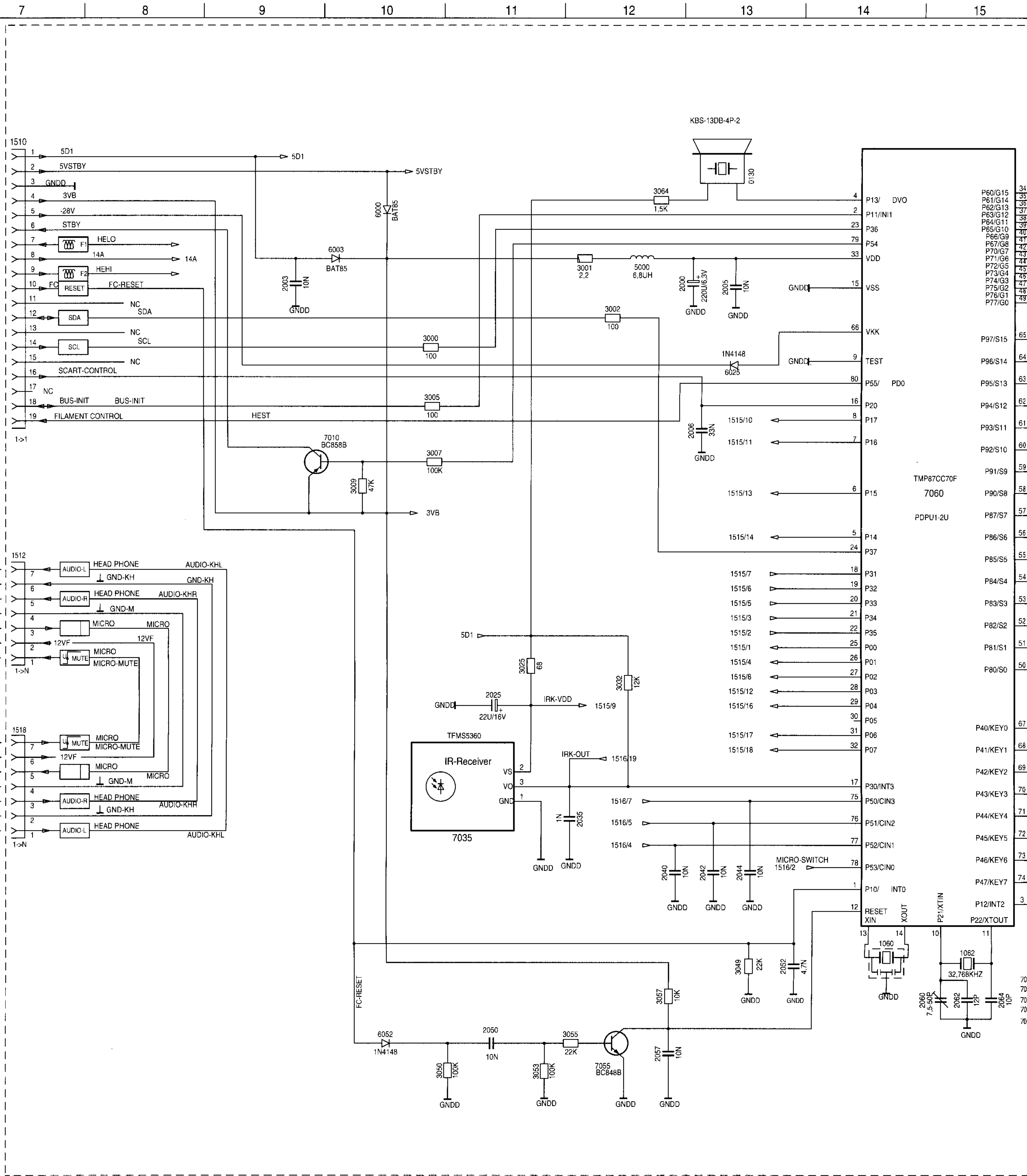
FE page 3-29/31	HC page 3-36	OS page 3-39	IO page 3-44	CF page 3-50	SP page 3-54
TM page 3-34	VS page 3-37	CC page 3-40	AU page 3-45	SH page 3-51	DC page 3-57...

Note on the components: "X" components are not used "Y" components are optional

PDCPN 1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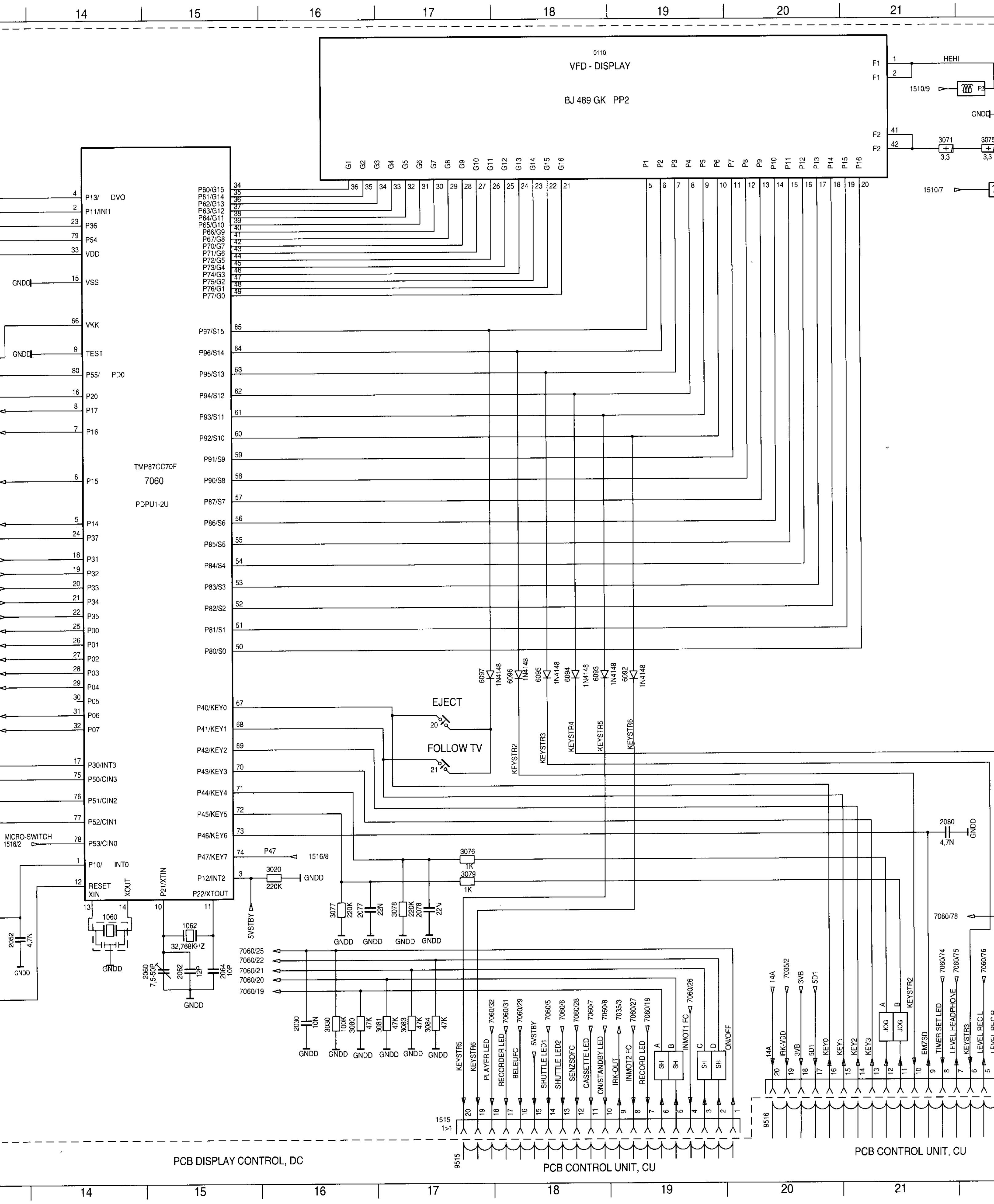
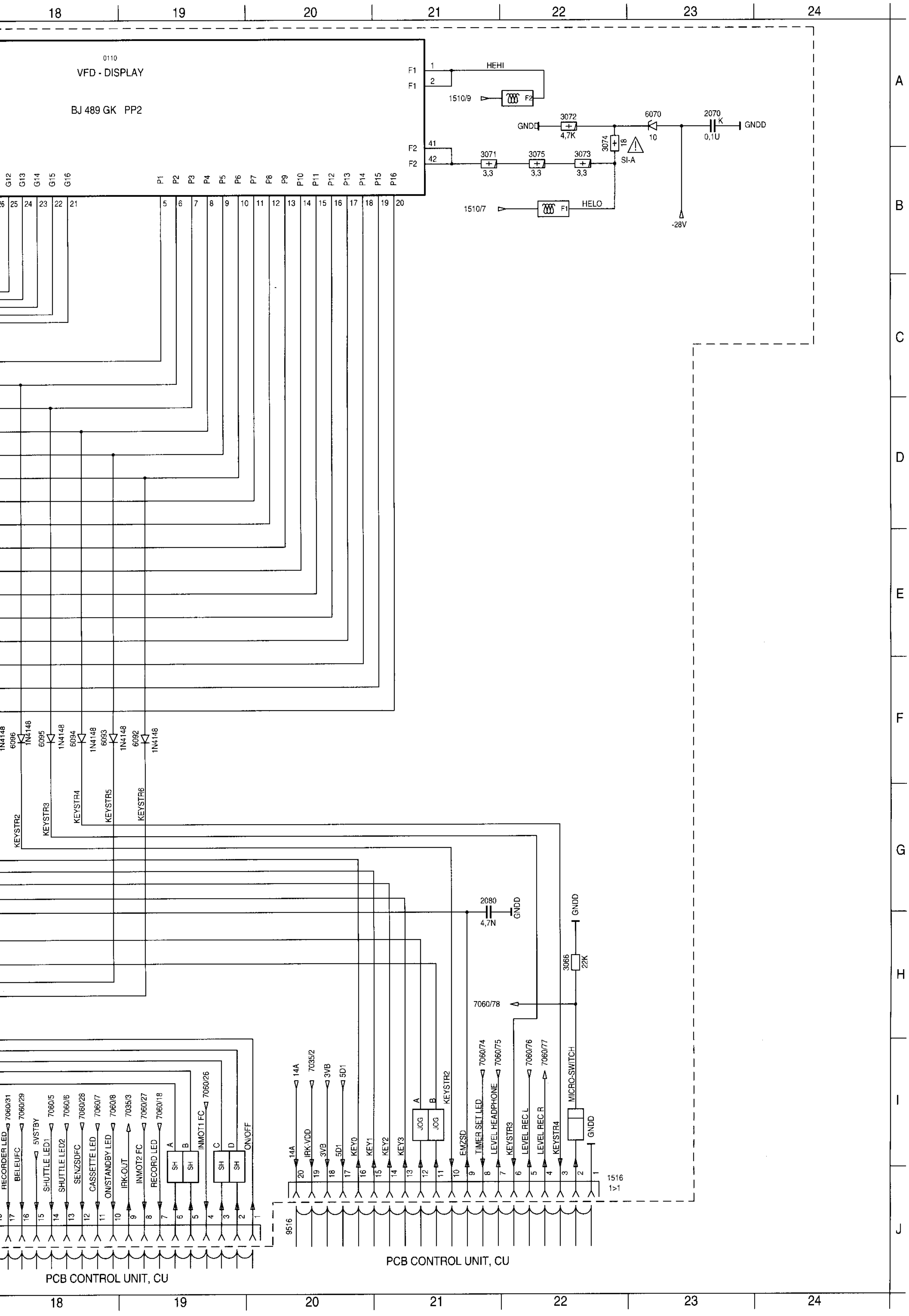
8
9
10
11
12
13
14
15
1510
5D1
5VSTBY
GNDD
3VB
-28V
STBY
HELO
F1
14A
HEHI
F2
FC
RESET
FC-RESET
NC
SDA
NC
SCL
NC
SCARTCONTROL
NC
BUS-INIT
BUS-INIT
FILAMENT CONTROL
HEST
1->1
5D1
5VSTBY
6000
BAT85
6003
BAT85
2003
10N
GNDD
KBS-13DB-4P-2
0130
3064
1,5K
3001
2,2
5000
6,8UH
2000
220U/6,3V
2005
10N
GNDD
3002
100
3000
100
1N4148
6025
3005
100
2006
33N
7010
BC858B
3007
100K
3009
47K
3VB
P13/ DVO
P11/INI1
P36
P54
VDD
VSS
VKK
TEST
P55/ PD0
P20
P17
P16
P15
P14
P37
P31
P32
P33
P34
P35
P00
P01
P02
P03
P04
P05
P06
P07
P30/INT3
P50/CIN3
P51/CIN2
P52/CIN1
P53/CIN0
P10/ INT0
RESET
XIN
XOUT
P21/XTIN
P22/XTOUT
P12/INT2
TMP87CC70F
7060
PDPU1-2U
P60/G15
P61/G14
P62/G13
P63/G12
P64/G11
P65/G10
P66/G9
P67/G8
P70/G7
P71/G6
P72/G5
P73/G4
P74/G3
P75/G2
P76/G1
P77/G0
P97/S15
P96/S14
P95/S13
P94/S12
P93/S11
P92/S10
P91/S9
P90/S8
P87/S7
P86/S6
P85/S5
P84/S4
P83/S3
P82/S2
P81/S1
P80/S0
P40/KEY0
P41/KEY1
P42/KEY2
P43/KEY3
P44/KEY4
P45/KEY5
P46/KEY6
P47/KEY7
1515/10
1515/11
1515/13
1515/14
1515/7
1515/6
1515/5
1515/3
1515/2
1515/1
1515/4
1515/8
1515/12
1515/16
1515/17
1515/18
1512
AUDIO-L
HEAD PHONE
AUDIO-KHL
GND-KH
GND-KH
AUDIO-R
HEAD PHONE
AUDIO-KHR
GND-M
MICRO
MICRO
12VF
12VF
MUTE
MICRO
MICRO-MUTE
1->N
1518
MUTE
MICRO
MICRO-MUTE
12VF
MICRO
GND-M
MICRO
AUDIO-R
HEAD PHONE
AUDIO-KHR
GND-KH
AUDIO-L
HEAD PHONE
AUDIO-KHL
1->N
5D1
3025
68
3032
12K
GNDD
2025
22U/16V
IRK-VDD
1515/9
TFMS5360
IR-Receiver
VS
VO
GND
7035
IRK-OUT
1516/19
2035
1N
GNDD
1516/7
1516/5
1516/4
MICRO-SWITCH
1516/2
2040
10N
2042
10N
2044
10N
1060
1062
32,768KHZ
2060
7,5-50P
2062
12P
2064
10P
3049
22K
2052
4,7N
FC-RESET
3057
10K
6052
1N4148
2050
10N
3055
22K
7055
BC848B
2057
10N
3050
100K
3053
100K

PDCPN 1

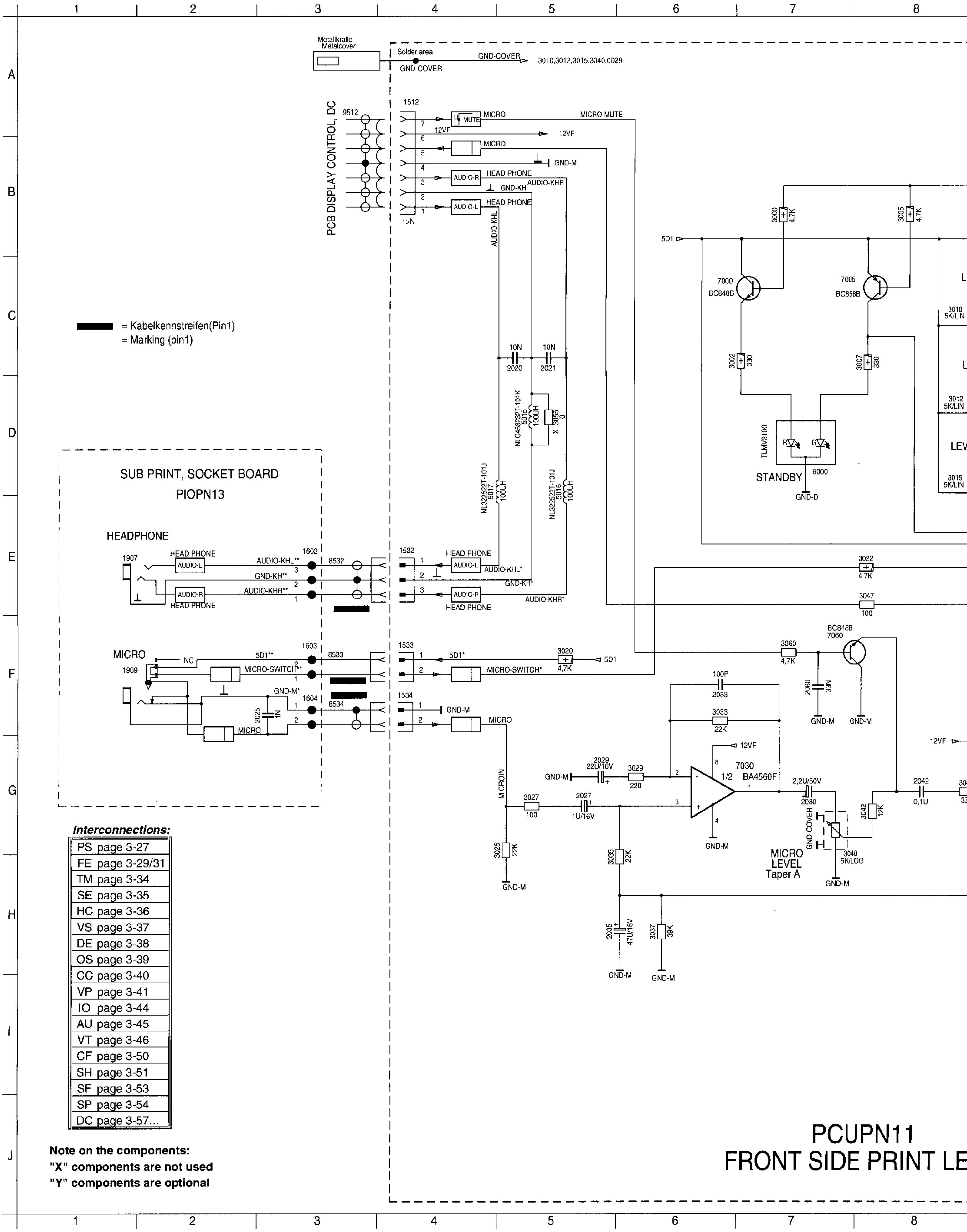

14
15
16
17
18
19
20
21
0110
VFD - DISPLAY
BJ 489 GK PP2
F1
F1
F2
F2
G1 G2 G3 G4 G5 G6 G7 G8 G9 G10 G11 G12 G13 G14 G15 G16
P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 P12 P13 P14 P15 P16
HEHI
1510/9
GNDD
3071
3075
3,3
3,3
1510/7
TMP87CC70F
7060
PDPU1-2U
P13/ DVO
P11/INI1
P36
P54
VDD
VSS
GNDD
VKK
TEST
P55/ PD0
P20
P17
P16
P15
P14
P37
P31
P32
P33
P34
P35
P00
P01
P02
P03
P04
P05
P06
P07
P30/INT3
P50/CIN3
P51/CIN2
P52/CIN1
MICRO-SWITCH
1516/2
P53/CIN0
P10/ INT0
RESET
XIN
XOUT
P21/XTIN
P22/XTOUT
P80/G15
P61/G14
P62/G13
P63/G12
P64/G11
P65/G10
P66/G9
P67/G8
P70/G7
P71/G6
P72/G5
P73/G4
P74/G3
P75/G2
P76/G1
P77/G0
P97/S15
P96/S14
P95/S13
P94/S12
P93/S11
P92/S10
P91/S9
P90/S8
P87/S7
P86/S6
P85/S5
P84/S4
P83/S3
P82/S2
P81/S1
P80/S0
P40/KEY0
P41/KEY1
P42/KEY2
P43/KEY3
P44/KEY4
P45/KEY5
P46/KEY6
P47/KEY7
P12/INT2
P47
1516/8
6097
6096
6095
6094
6093
6092
1N4148
EJECT
FOLLOW TV
KEYSTR2
KEYSTR3
KEYSTR4
KEYSTR5
KEYSTR6
3076
1K
3079
1K
3020
220K
GNDD
5VSTBY
3077
220K
2077
22N
3078
220K
2078
22N
2080
4,7N
7060/78
1060
1062
32,768KHZ
2060
7,5-50P
2062
12P
2064
10P
2052
4,7N
7060/25
7060/22
7060/21
7060/20
7060/19
2030
10N
3030
100K
3080
47K
3081
47K
3083
47K
3084
47K
7060/32
7060/31
7060/29
5VSTBY
7060/5
7060/6
7060/28
7060/7
7060/8
7035/3
7060/27
7060/18
7060/26
INNOT1 FC
KEYSTR5
KEYSTR6
PLAYER LED
RECORDER LED
BELEUFC
SHUTTLE LED1
SHUTTLE LED2
SENZSDFC
CASSETTE LED
ON/STANDBY LED
IRK-OUT
INNOT2 FC
RECORD LED
A
B
C
D
SH
ON/OFF
1515
1>1
9515
14A
7035/2
3VB
5D1
IRK-VDD
KEY0
KEY1
KEY2
KEY3
JOG
KEYSTR2
EMZSD
TIMER SET LED
LEVEL HEADPHONE
KEYSTR3
LEVEL REC L
7060/74
7060/75
7060/76
9516
PCB DISPLAY CONTROL, DC
PCB CONTROL UNIT, CU
PCB CONTROL UNIT, CU



0110
VFD - DISPLAY
BJ 489 GK PP2
HEHI
HELO
1510/9
1510/7
3072 4,7K
3071 3,3
3075 3,3
3073 3,3
3074 18
6070
2070 0,1U
GNDD
SI-A
-28V
6096 1N4148
6095 1N4148
6094 1N4148
6093 1N4148
6092 1N4148
KEYSTR2
KEYSTR3
KEYSTR4
KEYSTR5
KEYSTR6
2080 4,7N
3066 22K
7060/78
RECORDER LED
BELEUFC
5VSTBY
SHUTTLE LED1
SHUTTLE LED2
SENZSDFC
CASSETTE LED
ON/STANDBY LED
IRK-OUT
INMOT2 FC
RECORD LED
INMOT1 FC
ON/OFF
14A
IRK-VDD
3VB
5D1
KEY0
KEY1
KEY2
KEY3
JOG
EMZSD
TIMER SET LED
LEVEL HEADPHONE
LEVEL REC L
LEVEL REC R
MICRO-SWITCH
1516
1>1
9516
PCB CONTROL UNIT, CU
PCB CONTROL UNIT, CU
18
19
20
21
22
23
24
A
B
C
D
E
F
G
H
I
J

0110	A18
0130	B13
1060	H14
1062	H15
1510	B7
1511	B5
1512	E7
1514	D5
1515	J17
1516	J22
1518	F7
1519	H5
1520	C3
1900	B2
1901	G2
1902	G2
1903	H2
1905	D2
20	G17
2000	C12
2003	C9
2005	C13
2006	D13
2025	F11
2030	I16
2035	G12
2040	H12
2042	H13
2044	H13
2050	I11
2052	H13
2057	I12
2060	I14
2062	I15
2064	I15
2070	A23
2077	H16
2078	H17
2080	G21
21	G17
2101	D4
2105	D4
2120	H3
2122	H4
2124	H3
3000	C10
3001	C12
3002	C12
3005	D10
3007	D10
3009	D10
3020	H16
3025	F11
3030	I16
3032	F12
3049	H13
3050	I10
3053	I11
3055	I12
3057	I12
3064	B12
3066	H22
3071	B21
3072	A22
3073	B22
3074	A22
3075	B22
3076	H17
3077	H16
3078	H17
3079	H17
3080	I16
3081	I17
3083	I17
3084	I17
3101	C4
3102	B3
3103	B3
3105	D3
3110	E3
3115	G3
3120	G3
3124	H3
5000	C12
6000	B10
6003	B10
6025	C13
6052	I10
6070	A23
6092	F19
6093	F18
6094	F18
6095	F18
6096	F18
6097	F17
6103	D3
6105	D4
6108	E3
6110	E3
6115	G4
6117	G4
7010	D10
7035	G11
7055	I12
7060	D15

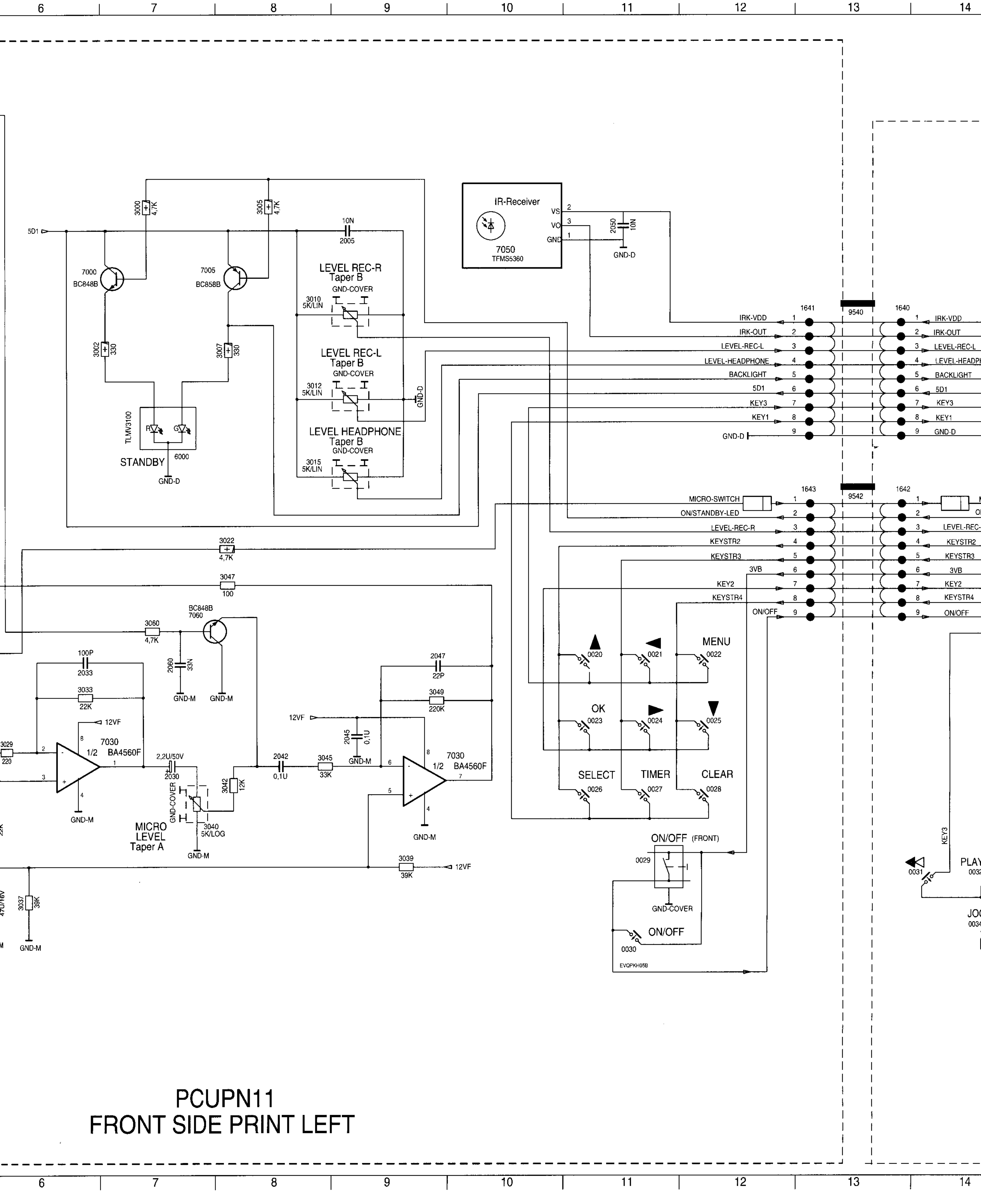
Display Control PCUPN1 (DC)


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
Metallkralle
Metalcover
Solder area
GND-COVER
GND-COVER
3010,3012,3015,3040,0029
PCB DISPLAY CONTROL, DC
9512
1512
MICRO
MUTE
MICRO-MUTE
12VF
12VF
MICRO
GND-M
AUDIO-R
HEAD PHONE
GND-KH
AUDIO-KHR
AUDIO-L
HEAD PHONE
AUDIO-KHL
1>N
= Kabelkennstreifen(Pin1)
= Marking (pin1)
10N
2020
10N
2021
NLC453232T-101K
5015
100UH
3055
0
X
NL322522T-101J
5017
100UH
NL322522T-101J
5016
100UH
5D1
3000
4,7K
3005
4,7K
7000
BC848B
7005
BC858B
3010
5K/LIN
3002
330
3007
330
3012
5K/LIN
TLMV3100
R
G
STANDBY
6000
GND-D
LEV
3015
5K/LIN
SUB PRINT, SOCKET BOARD
PIOPN13
HEADPHONE
1907
HEAD PHONE
AUDIO-L
AUDIO-KHL**
GND-KH**
AUDIO-R
AUDIO-KHR**
HEAD PHONE
1602
8532
1532
HEAD PHONE
AUDIO-L
AUDIO-KHL*
GND-KH*
AUDIO-R
AUDIO-KHR*
HEAD PHONE
3022
4,7K
3047
100
BC848B
7060
3060
4,7K
2060
33N
GND-M
GND-M
MICRO
1909
NC
5D1**
MICRO-SWITCH**
GND-M*
2025
1N
MICRO
1603
8533
1604
8534
1533
5D1*
3020
4,7K
5D1
MICRO-SWITCH*
1534
GND-M
MICRO
100P
2033
3033
22K
12VF
2029
22U/16V
GND-M
3029
220
7030
1/2 BA4560F
2,2U/50V
2030
12VF
2042
0,1U
MICROIN
3027
100
2027
1U/16V
3025
22K
GND-M
3035
22K
GND-COVER
3042
12K
MICRO
LEVEL
Taper A
3040
5K/LOG
GND-M
2035
47U/16V
3037
39K
GND-M
GND-M
PCUPN11
FRONT SIDE PRINT LE

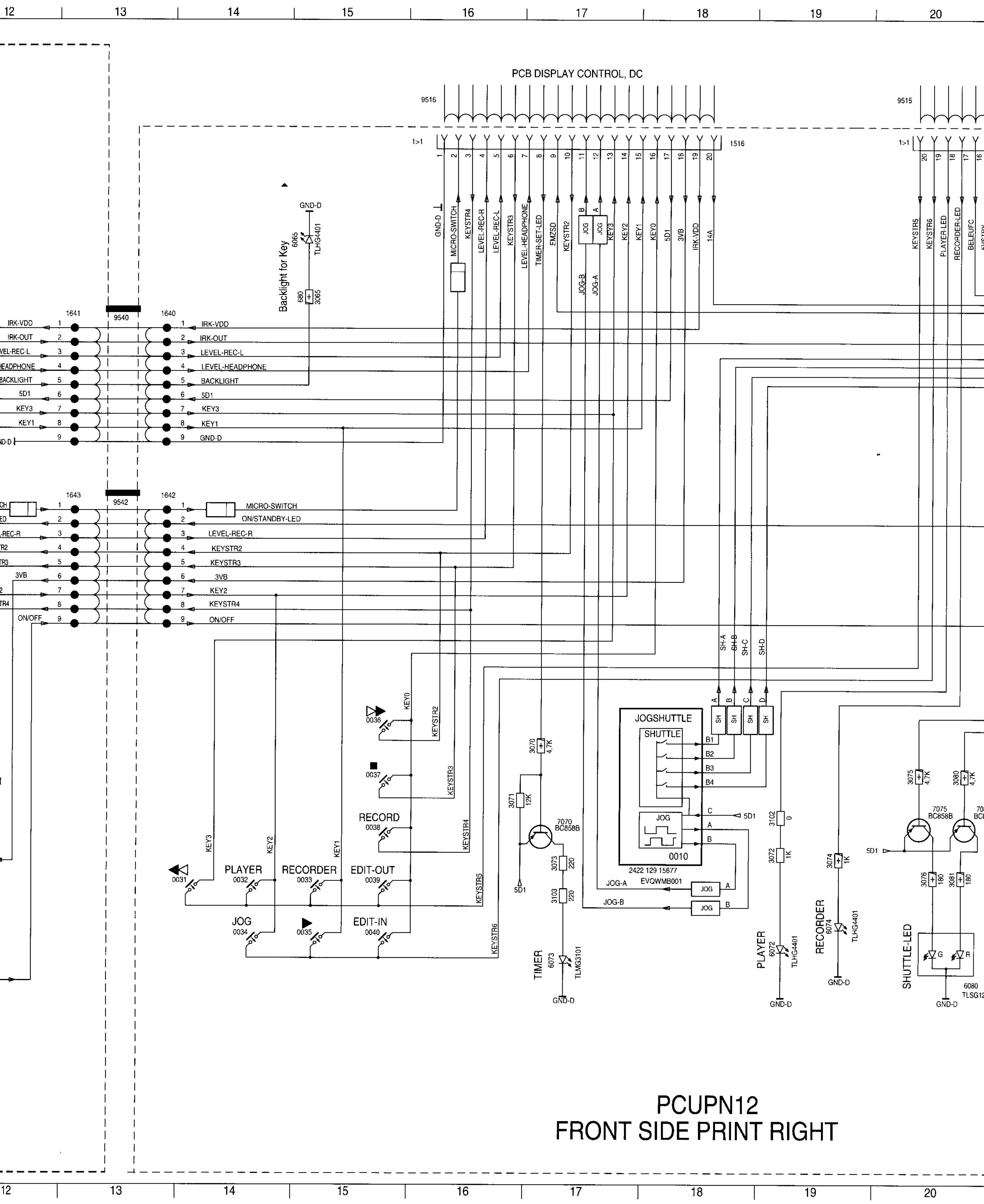
Interconnections:

PS	page 3-27
FE	page 3-29/31
TM	page 3-34
SE	page 3-35
HC	page 3-36
VS	page 3-37
DE	page 3-38
OS	page 3-39
CC	page 3-40
VP	page 3-41
IO	page 3-44
AU	page 3-45
VT	page 3-46
CF	page 3-50
SH	page 3-51
SF	page 3-53
SP	page 3-54
DC	page 3-57...

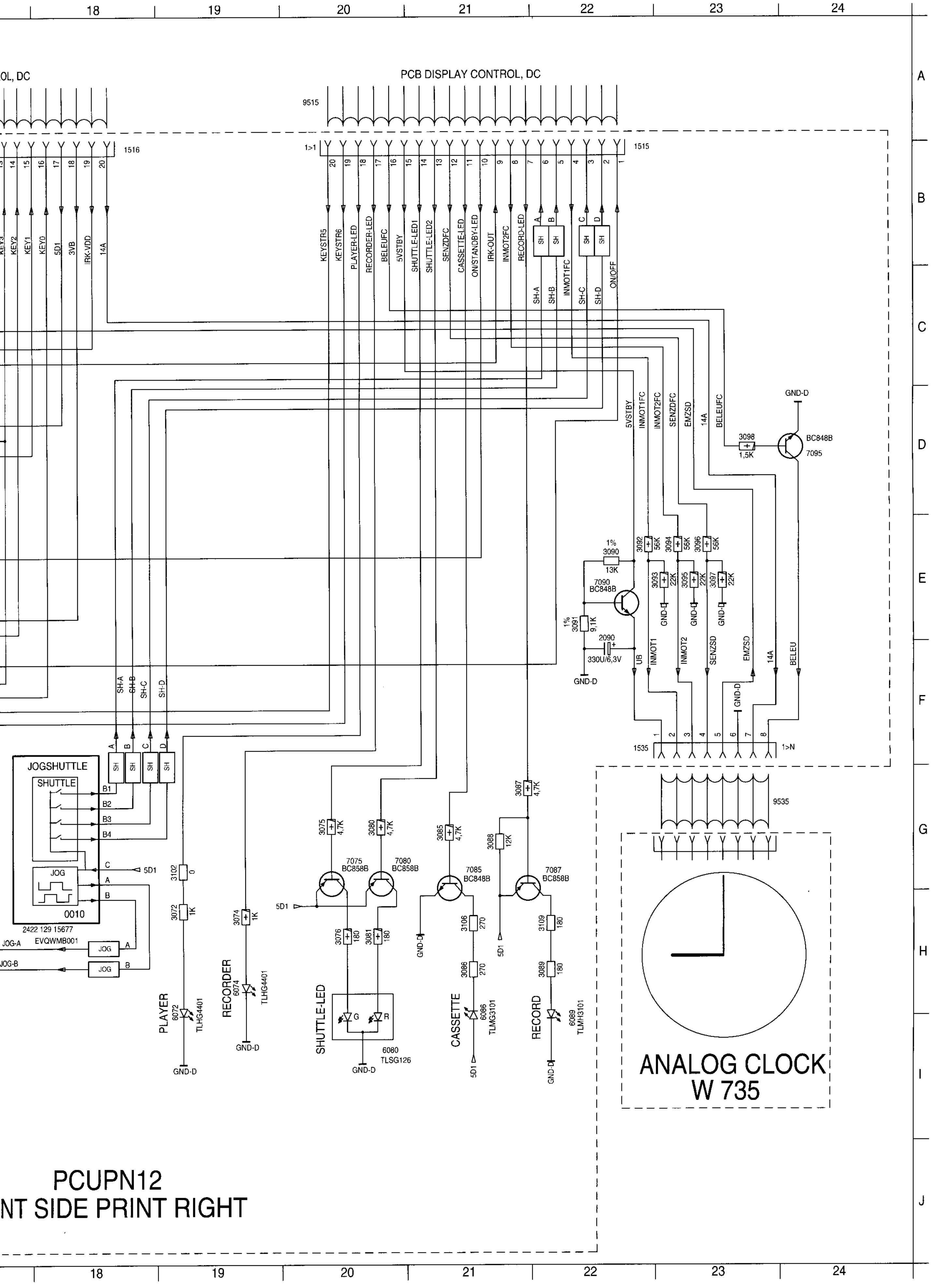
Note on the components:
"X" components are not used
"Y" components are optional


6
7
8
9
10
11
12
13
14
5D1
3000
4,7K
3005
4,7K
10N
2005
7000
BC848B
7005
BC858B
3002
330
3007
330
TLMV3100
R
G
STANDBY
6000
GND-D
LEVEL REC-R
Taper B
GND-COVER
3010
5K/LIN
LEVEL REC-L
Taper B
GND-COVER
3012
5K/LIN
GND-D
LEVEL HEADPHONE
Taper B
GND-COVER
3015
5K/LIN
IR-Receiver
VS
VO
GND
2
3
1
7050
TFMS5360
2050
10N
GND-D
1641
9540
1640
IRK-VDD
IRK-OUT
LEVEL-REC-L
LEVEL-HEADPHONE
BACKLIGHT
5D1
KEY3
KEY1
GND-D
1643
9542
1642
MICRO-SWITCH
ON/STANDBY-LED
LEVEL-REC-R
KEYSTR2
KEYSTR3
3VB
KEY2
KEYSTR4
ON/OFF
3022
4,7K
3047
100
3060
4,7K
BC848B
7060
2060
33N
GND-M
100P
2033
3033
22K
12VF
3029
220
7030
1/2 BA4560F
GND-M
2,2U/50V
2030
GND-COVER
3040
5K/LOG
MICRO
LEVEL
Taper A
GND-M
3042
12K
2042
0,1U
3045
33K
12VF
2045
0,1U
GND-M
2047
22P
3049
220K
7030
1/2 BA4560F
GND-M
3039
39K
12VF
3037
39K
47U/16V
GND-M
0020
0021
MENU
0022
OK
0023
0024
0025
SELECT
0026
TIMER
0027
CLEAR
0028
ON/OFF (FRONT)
0029
GND-COVER
ON/OFF
0030
EVQPKH05B
KEY3
0031
PLAY
0032
JOG
0034

PCUPN11
FRONT SIDE PRINT LEFT


12
13
14
15
16
17
18
19
20
PCB DISPLAY CONTROL, DC
9516
9515
1>1
1516
GND-D
MICRO-SWITCH
KEYSTR4
LEVEL-REC-R
LEVEL-REC-L
KEYSTR3
LEVEL-HEADPHONE
TIMER-SET-LED
EMZSD
KEYSTR2
JOG
KEY3
KEY2
KEY1
KEY0
5D1
3VB
IRK-VDD
14A
JOG-B
JOG-A
KEYSTR5
KEYSTR6
PLAYER-LED
RECORDER-LED
BELEUFC
Backlight for Key
6065
TLHG4401
680
3065
1641
1640
9540
IRK-VDD
IRK-OUT
LEVEL-REC-L
LEVEL-HEADPHONE
BACKLIGHT
5D1
KEY3
KEY1
GND-D
1643
1642
9542
MICRO-SWITCH
ON/STANDBY-LED
LEVEL-REC-R
KEYSTR2
KEYSTR3
3VB
KEY2
KEYSTR4
ON/OFF
SH-A
SH-B
SH-C
SH-D
0036
0037
RECORD
0038
0031
PLAYER
0032
RECORDER
0033
EDIT-OUT
0039
JOG
0034
0035
EDIT-IN
0040
3070
4,7K
3071
12K
7070
BC858B
3073
220
3103
220
TIMER
6073
TLMG3101
JOGSHUTTLE
SHUTTLE
B1
B2
B3
B4
C
A
B
JOG
0010
2422 129 15677
EVQWMB001
JOG-A
JOG-B
3102
0
3072
1K
PLAYER
6072
TLHG4401
RECORDER
6074
3074
1K
TLHG4401
3075
4,7K
3080
4,7K
7075
BC858B
3076
180
3081
180
SHUTTLE-LED
G
R
6080
GND-D

PCUPN12
FRONT SIDE PRINT RIGHT

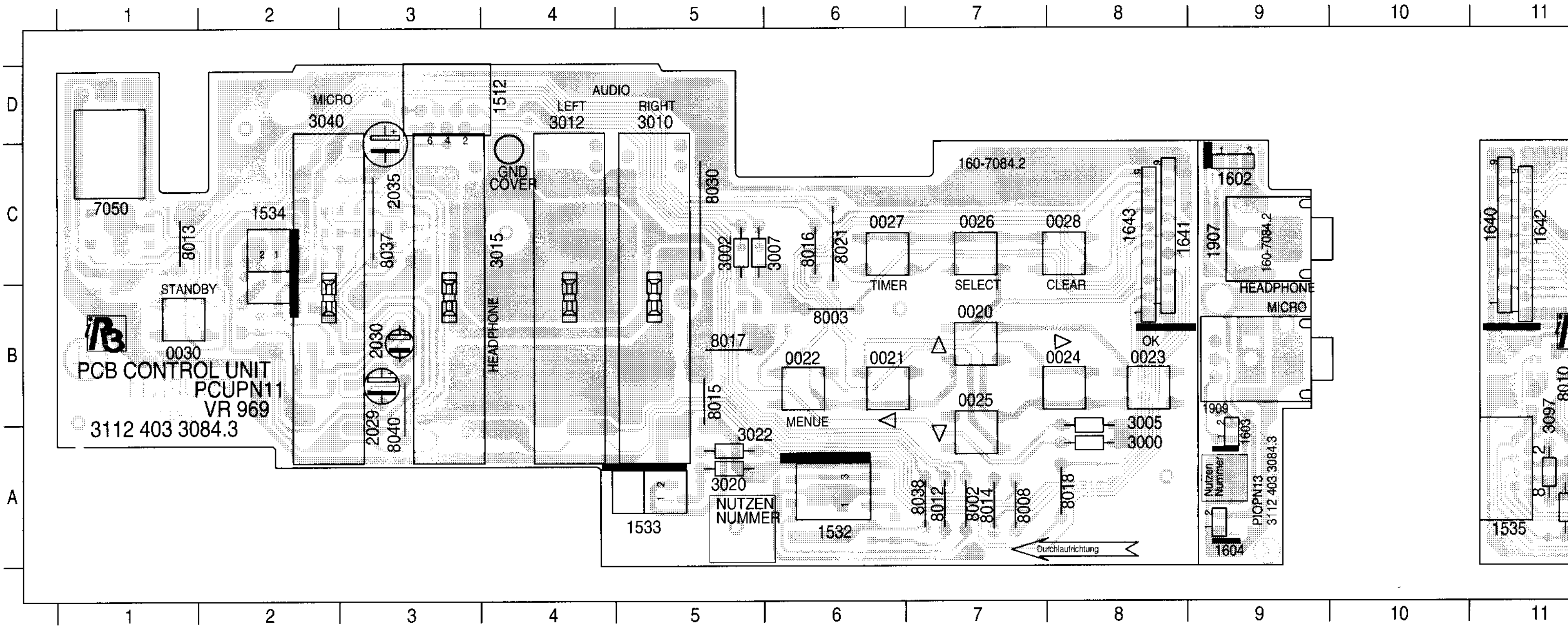

18
19
20
21
22
23
24
A
B
C
D
E
F
G
H
I
J
OL, DC
PCB DISPLAY CONTROL, DC
9515
1516
1>1
1515
KEY3
KEY2
KEY1
KEY0
5D1
3VB
IRK-VDD
14A
KEYSTR5
KEYSTR6
PLAYER-LED
RECORDER-LED
BELEUFC
5VSTBY
SHUTTLE-LED1
SHUTTLE-LED2
SENZDFC
CASSETTE-LED
ON/STANDBY-LED
IRK-OUT
INMOT2FC
RECORD-LED
SH-A
SH-B
INMOT1FC
SH-C
SH-D
ON/OFF
5VSTBY
INMOT1FC
INMOT2FC
SENZDFC
EMZSD
14A
BELEUFC
GND-D
3098
1,5K
BC848B
7095
1%
3090
13K
7090
BC848B
3092 56K
3094 56K
3096 56K
3093 22K
3095 22K
3097 22K
1%
3091
9,1K
2090
330U/6,3V
GND-D
UB
INMOT1
INMOT2
SENZSD
EMZSD
14A
BELEU
1535
1>N
9535
JOGSHUTTLE
SHUTTLE
B1
B2
B3
B4
C
A
B
5D1
JOG
0010
2422 129 15677
JOG-A
EVQWMB001
JOG-B
JOG
3102
0
3072
1K
PLAYER
6072
TLHG4401
GND-D
3074
1K
RECORDER
6074
TLHG4401
GND-D
3075
4,7K
3080
4,7K
7075
BC858B
7080
BC858B
5D1
3076
180
3081
180
SHUTTLE-LED
G
R
6080
TLSG126
GND-D
3085
4,7K
7085
BC848B
GND-D
3106
270
3086
270
CASSETTE
6086
TLMG3101
5D1
3087
4,7K
3088
12K
5D1
7087
BC858B
3109
180
3089
180
RECORD
6089
TLMH3101
GND-D
ANALOG CLOCK
W 735
PCUPN12
NT SIDE PRINT RIGHT

0010	H18
0020	F11
0021	F11
0022	F12
0023	G11
0024	G11
0025	G12
0026	G11
0027	G11
0028	G12
0029	H11
0030	I11
0031	H14
0032	H14
0033	H15
0034	H14
0035	H15
0036	G15
0037	G15
0038	G15
0039	H15
0040	H15
1512	A4
1515	B22
1516	B18
1532	E4
1533	F4
1534	F4
1535	F22
1602	E3
1603	F3
1604	F3
1640	C13
1641	C13
1642	E13
1643	E13
1907	E1
1909	F1
2005	B9
2020	C5
2021	C5
2025	F3
2027	G5
2029	G5
2030	G7
2033	F6
2035	H5
2042	G8
2045	G9
2047	F9
2050	B11
2060	F7
2090	F22
3000	B7
3002	C6
3005	B8
3007	C8
3010	C8
3012	D8
3015	D8
3020	F5
3022	E8
3025	G5
3027	G5
3029	G6
3033	F6
3035	H5
3037	H6
3039	H9
3040	G7
3042	G8
3045	G8
3047	E8
3049	F9
3055	D5
3060	F7
3065	C15
3070	G17
3071	G16
3072	H19
3073	H17
3074	H19
3075	G20
3076	H20
3080	G20
3081	H20
3085	G21
3086	H21
3087	G21
3088	G21
3089	H22
3090	E22
3091	E22
3092	E22
3093	E23
3094	E23
3095	E23
3096	E23
3097	E23
3098	D23
3102	G19
3103	H17
3106	H21
3109	H22
5015	D5
5016	D5
5017	D4
6000	D7
6065	B15
6072	H19
6073	I17
6074	H19
6080	I20
6086	H21
6089	I22
7000	C6
7005	C7
7030	G6
7030	G9
7050	C10
7060	F7
7070	G17
7075	G20
7080	G20
7085	G21
7087	G22
7090	E22
7095	D24

Display Control PCUPN1

Conventional Assembly

View of components side


1
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3
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D
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A
MICRO
3040
1512
AUDIO
LEFT
3012
RIGHT
3010
GND COVER
2035
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1534
8013
STANDBY
0030
PCB CONTROL UNIT
PCUPN11
VR 969
3112 403 3084.3
2030
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8040
HEADPHONE
160-7084.2
0027
TIMER
0026
SELECT
0028
CLEAR
3002
3007
8016
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8017
0020
0022
MENUE
0021
0024
0023
OK
0025
8015
3022
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3005
3000
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NUTZEN NUMMER
1532
8038
8012
8002
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8008
8018
Durchlaufrichtung
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HEADPHONE
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3112 403 3084.3
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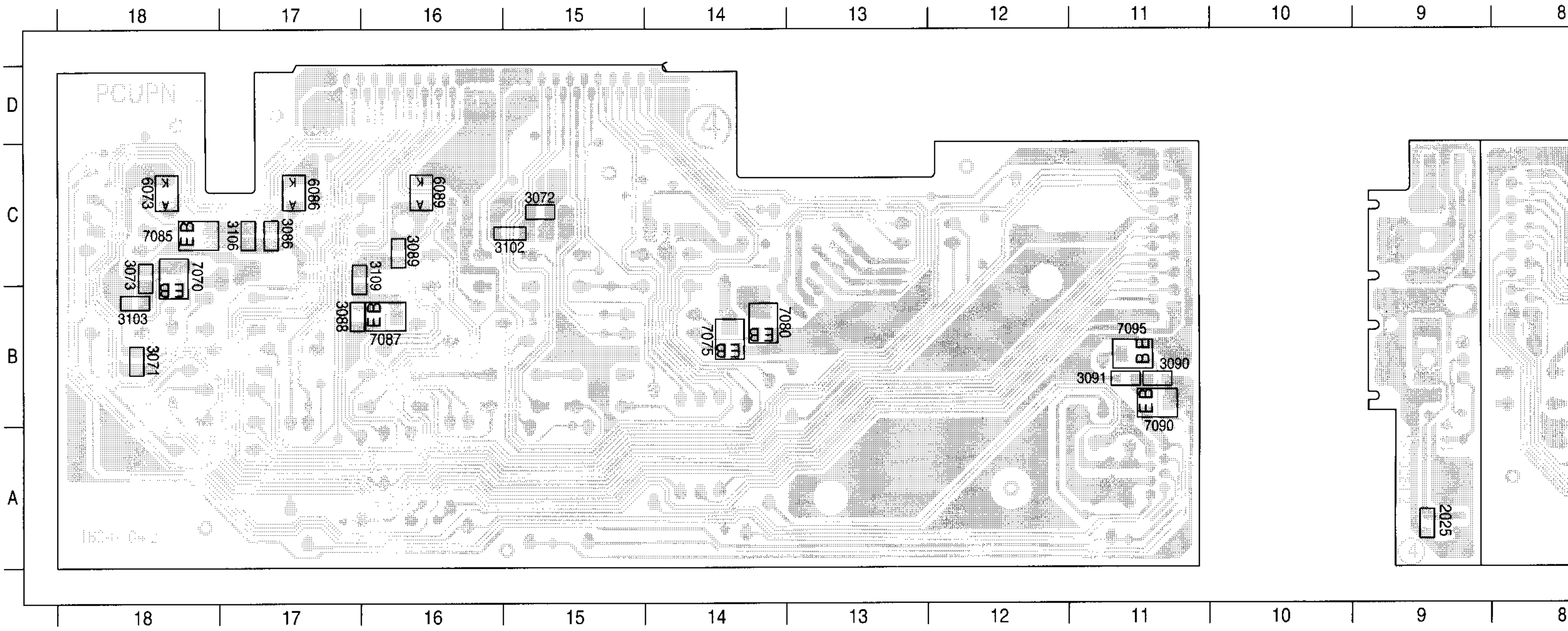
1535

0010	B 12	0025	A 7	0032	C 15	0038	B 16	1532	A 6	1604	A 9	1909	B 9	3002	C 5	3020	A 5	3075	B 14	3092	C 14	3098	A
0020	B 7	0026	C 7	0033	C 16	0039	B 15	1533	A 5	1640	C 11	2029	B 3	3005	B 8	3022	A 5	3076	C 14	3093	A 11	6065	C
0021	B 6	0027	C 6	0034	C 14	0040	B 15	1534	C 2	1641	C 8	2030	B 3	3007	C 5	3040	B 2	3080	B 14	3094	A 14	6072	C
0022	B 6	0028	C 8	0035	B 17	1512	D 3	1535	A 11	1642	C 11	2035	D 3	3010	B 5	3065	B 18	3081	C 14	3095	A 11	6074	C
0023	B 8	0030	B 1	0036	C 18	1515	D 15	1602	C 9	1643	C 8	2090	A 18	3012	B 4	3070	B 17	3085	C 18	3096	A 14	6080	C
0024	B 8	0031	C 17	0037	B 17	1516	D 16	1603	A 9	1907	C 9	3000	A 8	3015	B 3	3074	B 16	3087	B 16	3097	A 11	7050	D

SMD Assembly

View of solder side


18
17
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9
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B
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PCUPN
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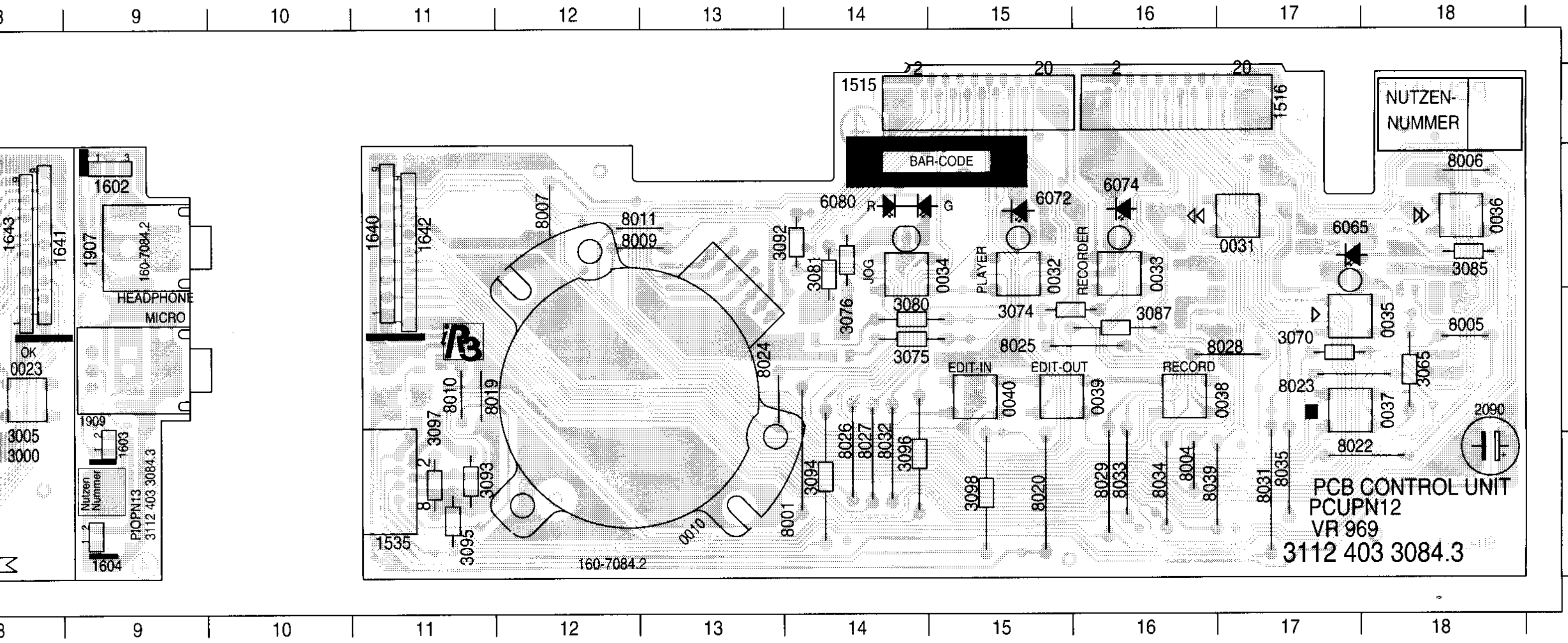
0029	C 1	2025	A 9	2045	B 3	3025	C 2	3035	B 2	3045	C 2	3060	C 3	3086	C 17	3091	B 11	3109	C 17	6000	C 2	7000	B
2005	B 5	2027	B 2	2047	C 2	3027	C 2	3037	C 2	3047	C 2	3071	B 18	3088	B 17	3102	C 15	5015	A 6	6073	C 18	7005	B
2020	A 6	2033	B 2	2050	B 1	3029	B 3	3039	B 3	3049	C 2	3072	C 15	3089	C 16	3103	B 18	5016	A 6	6086	C 17	7030	B
2021	A 6	2042	C 3	2060	C 3	3033	B 2	3042	C 3	3055	A 6	3073	C 18	3090	B 11	3106	C 17	5017	A 6	6089	C 16	7060	C


1515
1516
BAR-CODE
NUTZEN-
NUMMER
1602
1643
1641
1907
160-7084.2
HEADPHONE
MICRO
OK
0023
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Nutzen Nummer
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3112 403 3084.3
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JOG
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PLAYER
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RECORDER
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EDIT-IN
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EDIT-OUT
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RECORD
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PCB CONTROL UNIT
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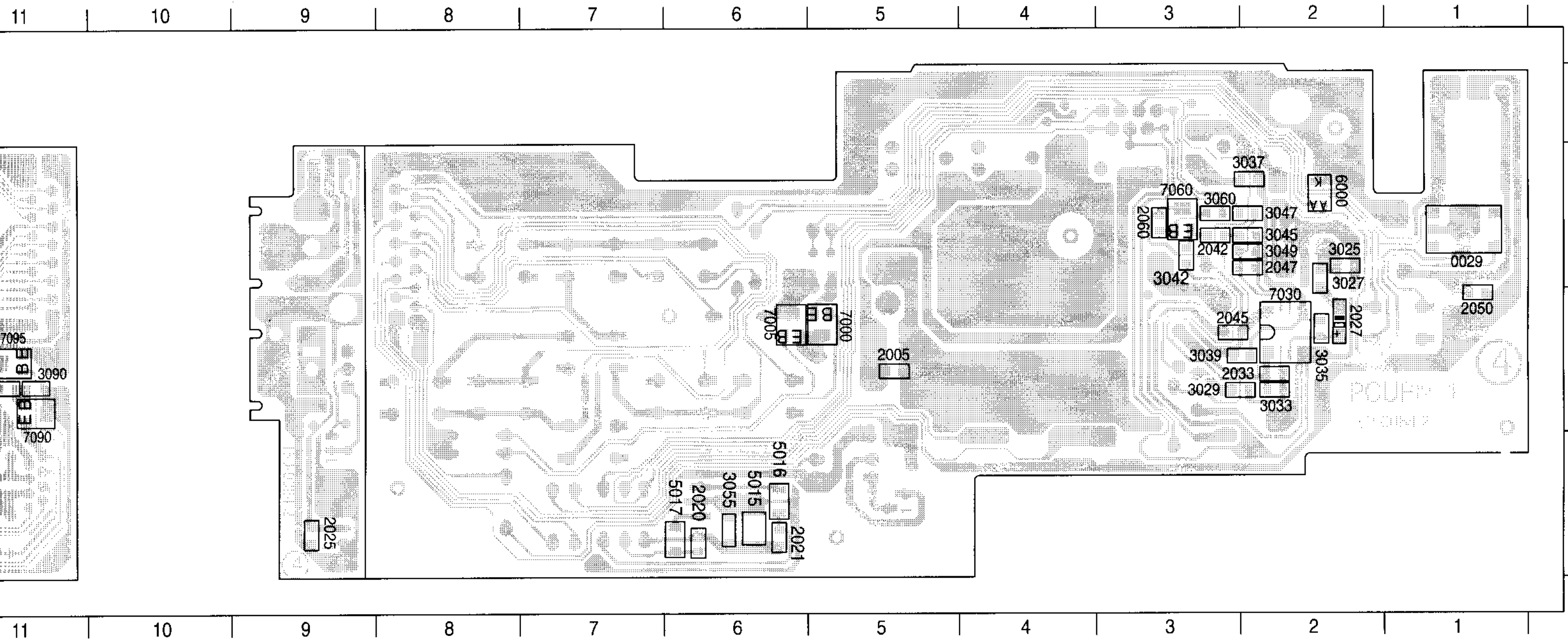
20	A 5	3075	B 14	3092	C 14	3098	A 15	8001	A 14	8007	C 12	8013	C 1	8019	B 11	8025	B 16	8031	A 17	8038	A 7
22	A 5	3076	C 14	3093	A 11	6065	C 17	8002	A 7	8008	A 7	8014	A 7	8020	A 15	8026	A 14	8032	A 14	8039	A 17
40	B 2	3080	B 14	3094	A 14	6072	C 15	8003	B 6	8009	C 13	8015	B 5	8021	C 6	8027	A 14	8033	A 16	8040	B 3
65	B 18	3081	C 14	3095	A 11	6074	C 16	8004	A 16	8010	B 11	8016	C 6	8022	A 18	8028	B 17	8034	A 16		
70	B 17	3085	C 18	3096	A 14	6080	C 14	8005	B 18	8011	C 13	8017	B 5	8023	B 17	8029	A 16	8035	A 17		
74	B 16	3087	B 16	3097	A 11	7050	D 1	8006	C 18	8012	A 7	8018	A 8	8024	B 13	8030	C 5	8037	C 3		


3037
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6000
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PCUPN
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1

91	B 11	3109	C 17	6000	C 2	7000	B 5	7070	C 18	7087	B 16
02	C 15	5015	A 6	6073	C 18	7005	B 6	7075	B 14	7090	B 11
03	B 18	5016	A 6	6086	C 17	7030	B 2	7080	B 14	7095	B 11
06	C 17	5017	A 6	6089	C 16	7060	C 3	7085	C 18		

4. DRIVE ASSEMBLY

This tape deck has three motors; one providing precision drive for the scanner unit; the second providing direct drive for the capstan and belt drive for the reel tables; the third motor drives the lift and tape threading/dethreading operations.

Special features are:

Quick start
Short winding time
Automatic cleaning of video heads by cleaning roller

To obtain a high repair standard we have developped a range of service kit's. These kit's covers the spare parts which are engaged together.
The tape deck's sensors are located on the motherboard underneath the tape deck, and included in its circuitry, lay out and parts list.

4.1 Deck parts replacement

The procedure for the removal and refitting of the following parts is described; only the lift, the scanner, the capstan motor and the A/C head are fixed by screws.
All the other deck assembly parts are held only by snap hooks.

For the replacement of parts on the underside of the tape deck, remove the tape deck from the motherboard.

Manual extraction of cassette:
If, after the Eject button has been pressed, the drive does not unthread and eject the cassette, the dethreading/eject operation can also be carried out manually by turning the wheel at the rear of the threading motor.

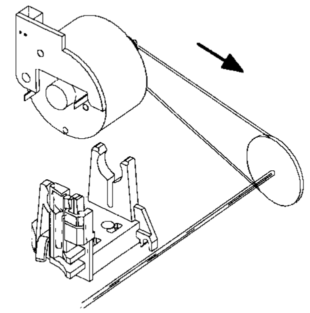
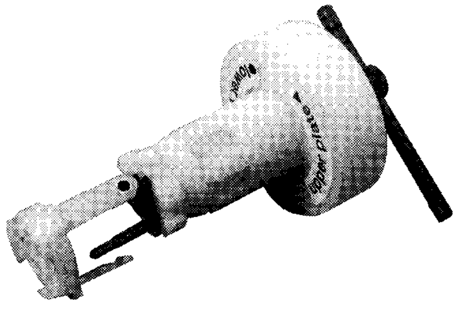


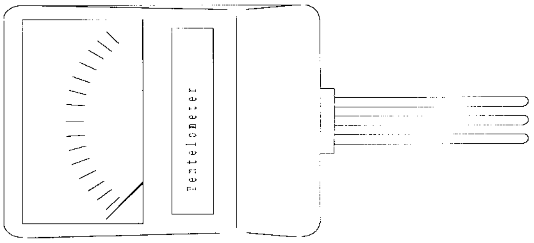
fig. 1

IMPORTANT:
After each repair has been carried out in the drive assembly, the first operation after repairing must be to bring the cassette compartment into „eject“ position by hand.

Auxiliary tools for deck adjustment:

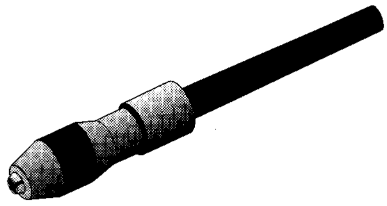


Tool for removing the head disc 4822 395 90977

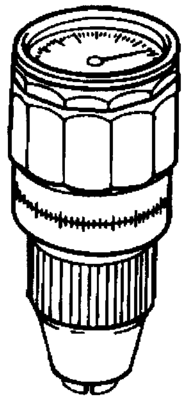


Tentelometer 4822 395 90584

Tool for tapetension adjustment 4822 395 50188

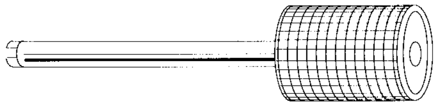


Handle 4822 256 90493



Torquemeter:

600 gf-cm 4822 395 90232
90 gf-cm 4822395 80196



Post adjustment screwdriver 4822 395 50275

Testcassette 4822 397 30103

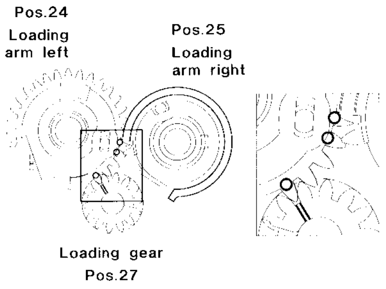
Nylon gloves 5322 395 94022

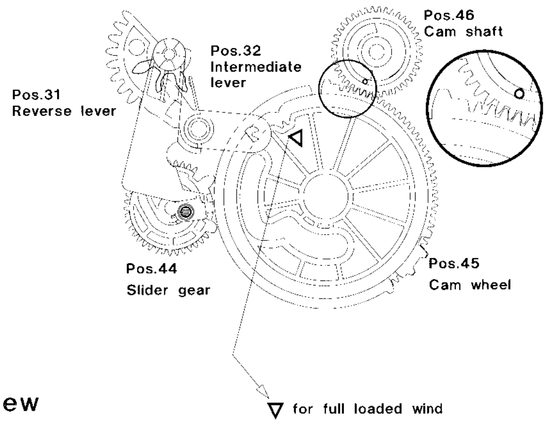
4.1.1 Deck lay out diagram

Deck in position „threaded out“.

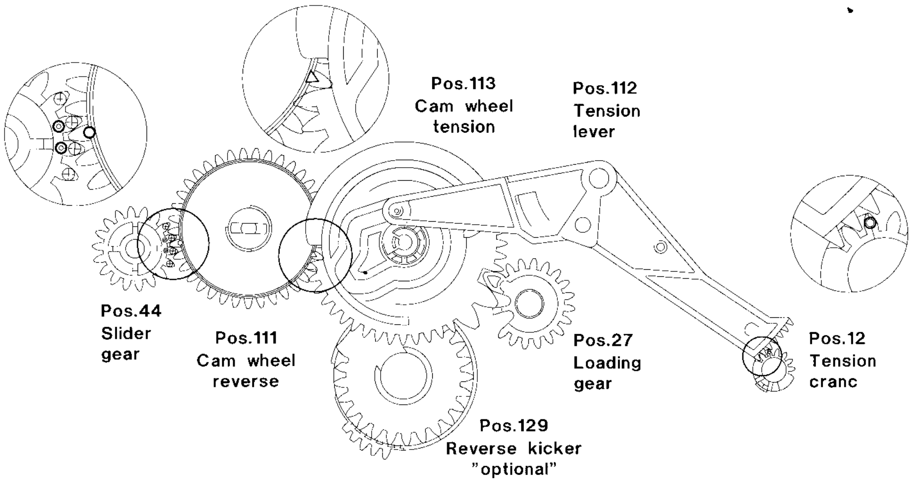
The following diagrams indicate the relative position of the gearwheels and levers when the deck is in the threaded out (cassette-compartment down) position.

Top view


Pos.24
Loading arm left
Pos.25
Loading arm right
Loading gear
Pos.27


Pos.46
Cam shaft
Pos.32
Intermediate lever
Pos.31
Reverse lever
Pos.44
Slider gear
Pos.45
Cam wheel
∇ for full loaded wind

Underside view


Pos.113
Cam wheel tension
Pos.112
Tension lever
Pos.44
Slider gear
Pos.111
Cam wheel reverse
Pos.27
Loading gear
Pos.12
Tension cranc
Pos.129
Reverse kicker
"optional"

4.1.2 The Lift

Refitting the lift compartment:
Ensure the lift compartment is down and gear A is rotated one click stop anticlockwise from the down position.
The removal and refitting of the lift can be carried out in all deck positions with the exception of „eject“ (ensure that gears 103/105 are free).

To remove the lift:
Free the holding bracket (Fig. 2) by rotating it up and back from the upper end.
Unscrew the 4 screws on the underside of the deck.
Carefully remove the lift vertically, noting the position of the record protect operating lever.

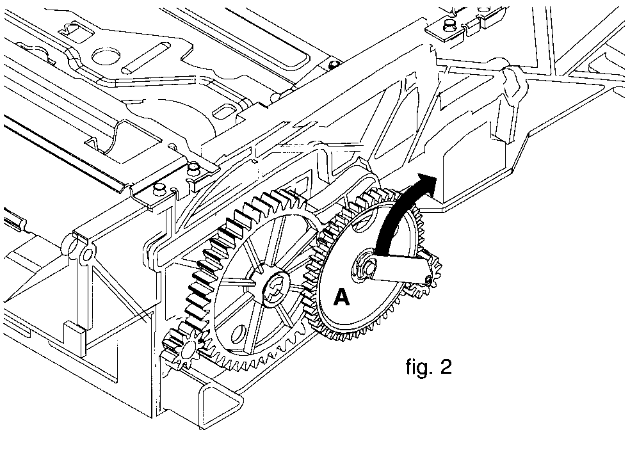


fig. 2

4.1.3 Head disc replacement

Removal :
Nylon gloves should be worn when handling the head disc.
Turn the headdisc until the long hole of the rotor appears in the bigger hole of the scannermotor
Insert the reference pin C (included with each service head disc) through the bigger hole of the lid of the scanner motor until the pin snaps in the long hole of the rotor. (Fig. 3)

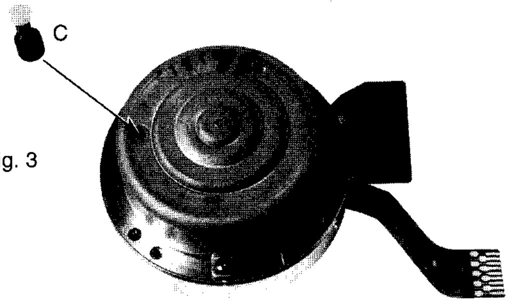


fig. 3

Important:
Choose Installation/Removal of the upper/lower clamping element by turning and attaching the reference element to the tool. (Fig. 4)

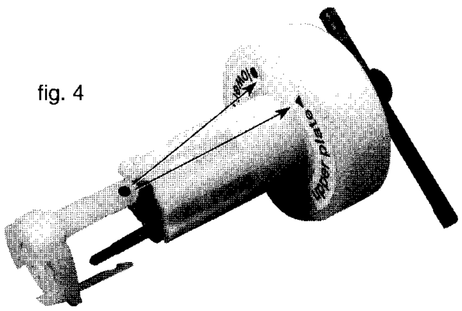
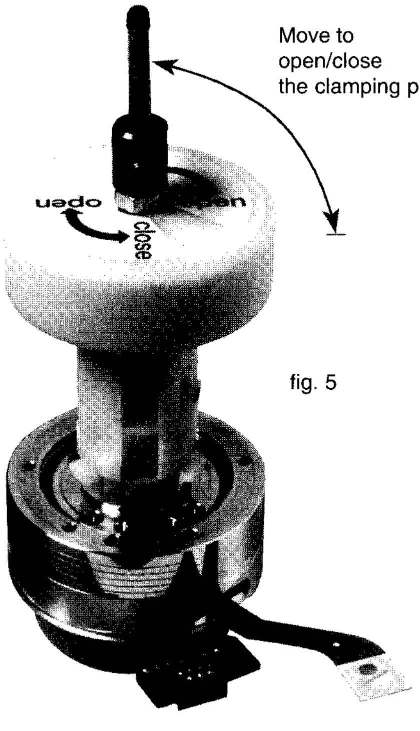


fig. 4



Move to
open/close
the clamping plate

Position the tool on the upper clamping element, loosen the clamping element by turning the lever 90 degrees and remove it from the head disc. (Fig. 5)

fig. 5

Prepare the tool for the lower clamping element.Position the tool on the head disc and make sure that all 3 pins are snapped in the the lower clamping element. Loosen the clamping element by turning the lever 90 degrees and remove the head disc plus the tool from the scanner spindle. (Fig.6)

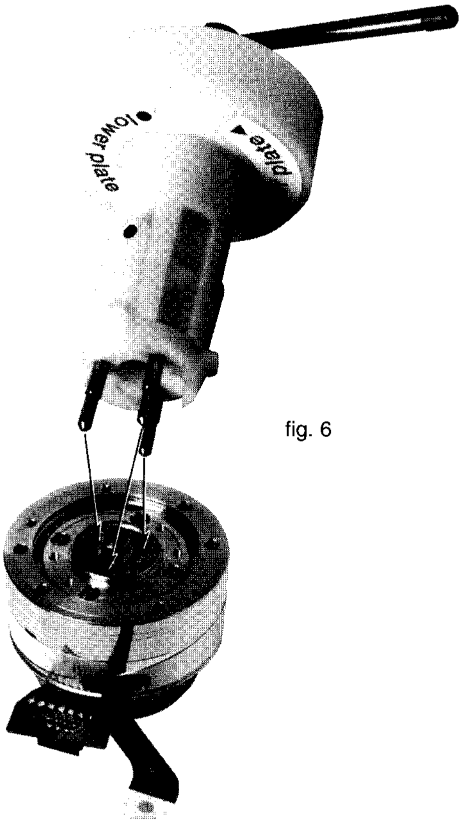


fig. 6

Installation:
Before carrying out the installation of the new head disc make sure that the scanner motor spindle is clean and undamaged. (The spindle has to be free of grease and must not be touched with bare hands)
Insert the 2 Mylar foils (included with each head disc) in the head disc. (Fig.7)

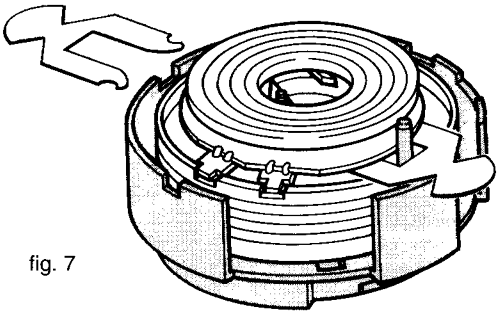


fig. 7

Position the tool (reference: lower clamping element) on the new headdisc (with protective cover) and loosen the lower clamping element.
Position the head disc so that pin D of the protective cover engages in the hole of the stator (the arrow on the protective cover must point towards the scanner print). (Fig. 8)

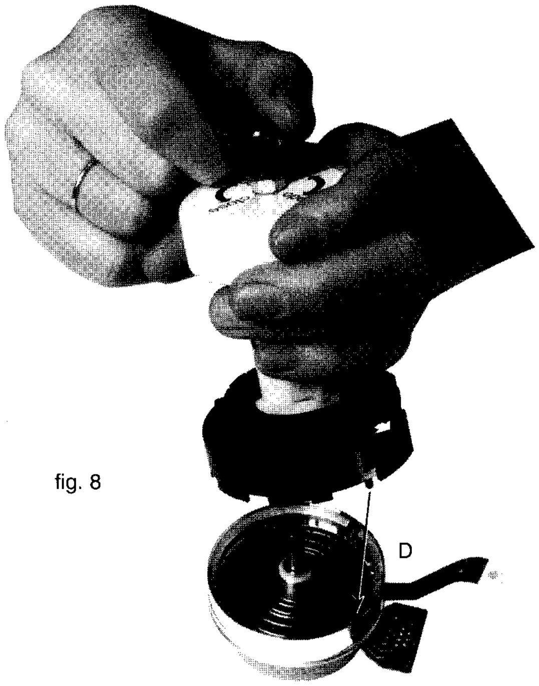
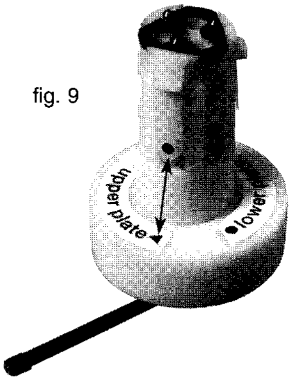


fig. 8

Reach the exact position through pressing the tool down with a force of 1 N. and fix the lower clamping element by turning the lever towards „close".
Remove the tool.
Change the tool to „upper clamping element" and position the clamping element exactly. (Fig. 9)

fig. 9



Tighten the clamping element through turning the lever towards „open".
Position the tool planely on the head disc and fix the clamping element.
(Fig.5 „close")
Remove the protecting cap from the head disc, withdraw the two Mylar foils and remove the reference pin C.

After replacing the head disc, carry out the following adjustments and checks :
Head switching pulse (gap position, chapter 3)
Write current adjustments (chapter 3)
Check tape path alignment (see paragraph 4.2.1.)

4.1.4 A/C Head (Combi head) (Pos. 36)

Remove the fixing spring (A) (fig. 10)
Remove the fixing screw and replace the A/C head.
Use a new fixing spring (included with new A/Chead) for reassembly.

After the A/C head has been replaced, all adjustments described in paragraph 4.2.1.2 and paragraph 4.2.2 have to be carried out.

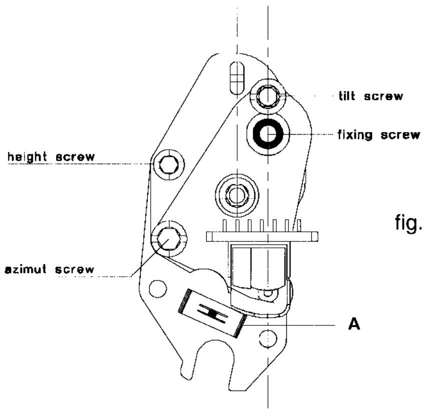


fig. 10

4.1.5 Threading motor (Pos. 38)

Remove the belt and disconnect the connector plug.
Remove the threading motor from the motor supports (Fig. 11).

During reassembly ensure that the threading motor is correctly located in the front and rear supports.

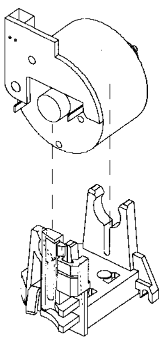


fig. 11

4.1.6 Capstan motor (Pos. 127)

Remove the tape deck.
Remove the belt (pos.126) on the underside;
Remove the three capstan motor fixing screws (Fig. 12) and withdraw the capstan motor downward from the drive assy.
The reassembly is carried out in reverse order. Make sure that the capstan is free of grease.

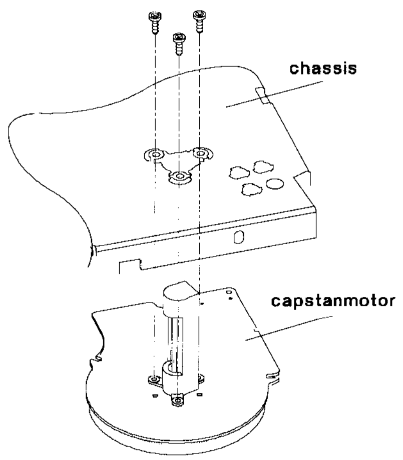


fig. 12

4.1.7 Pressure roller (Pos. 37)

Remove the tape deck
Unhook and remove the pressure roller tension spring.
Release the pressure roller guide (pos. 41) from the guide in the threading motor holder by pressing the top of the motor guide rearwards and rotating the pressure roller guide assembly clockwise by approximately a quarter of a turn (Fig. 13) The pressure roller and guide can now be lifted clear.

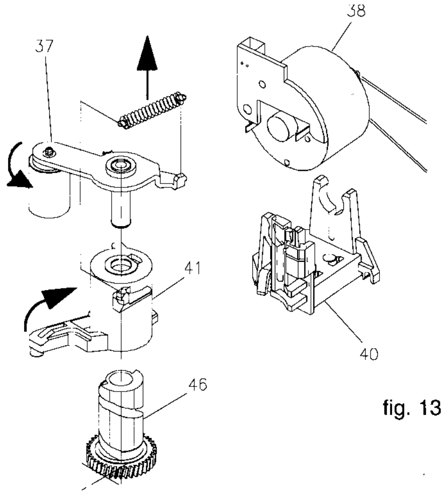
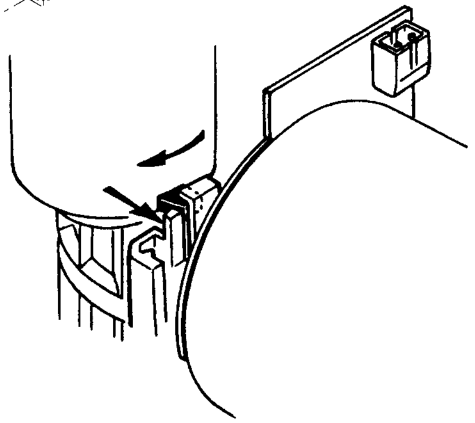


fig. 13



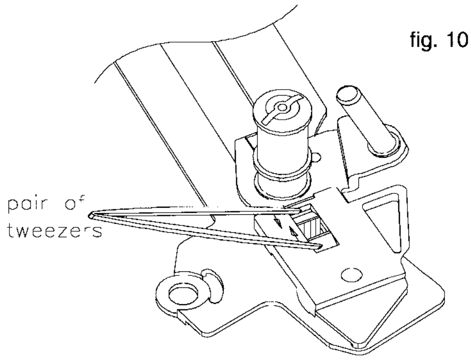
Ensure that no grease from the pressure roller guide gets to the capstan or pressure roller.
The reassembly is carried out in reverse order.

4.1.8 Roller unit right (Pos. 26)

Remove the tape deck.
Compress the two snap hooks by means of a pair of tweezers and remove the roller assy from the roller unit right (Fig. 14).
Unhinge the loading arm right from the holding plate and push the latter towards the front of the deck to remove from the guide (right).

NOTE: During reassembly ensure the link from 25 is engaged in the hole of the holder plate 26.
After replacing the roller unit (right), the tape path has to be checked, and adjusted if necessary (paragraph 4.2.1).

fig. 10



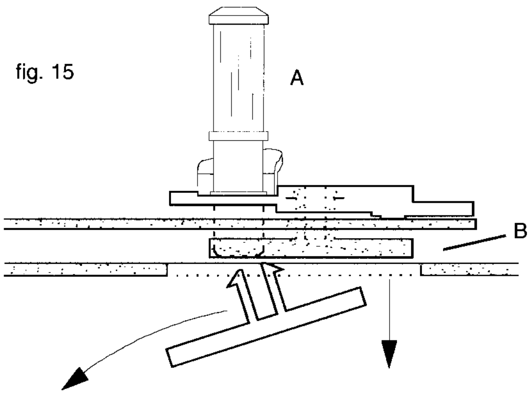
4.1.9 Roller unit left (Pos.23)

Set the drive assy to „Eject" position.
Unhook the tension arm spring (pos. 11), to avoid the tension arm spring being pre-loaded.
At the bottom side of the drive assy remove the tension lever (pos.112).
Compress the two snap hooks by means of a pair of tweezers (Fig. 9)and remove the roller assy (A) from the plate (B).
Unhinge the loading arm (left) from the holding plate and remove the latter downward from the drive assy through the recess in the chassis (Fig. 15).
The reassembly is carried out in reverse order.

NOTE : During reassembly
1. Place the carriage holding plate in the assembly with the half-round cutout nearest the rear of the deck.
2. When the loading arm is refitted ensure the pin on the underside of 23 is through the link of 24B.

After replacing the roller unit (left) the tape path has to be checked (paragraph 4.2.1.), and adjusted if necessary.

fig. 15



4.2 Adjustments

4.2.1 Tape path

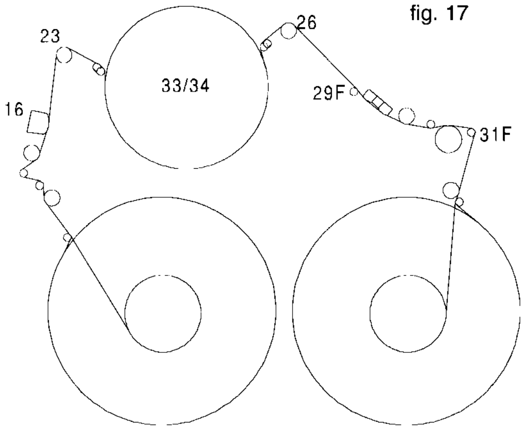

23
26
33/34
16
29F
31F

fig. 17

4.2.1.1 Roller left unit/roller unit right

Preparation:
Connect one input of a dual trace oscilloscope to observe the tape sync pulse CTL. The other input (DC coupled) to observe the tracking information TRIV.
Trigger the oscilloscope externally on the head pulse HP1.
Playback the black and white section of the alignment test tape.
Set the deck in the condition where the video heads are running along the upper edge of the tracks only by:

1. Call the service test program (chapter 2.1)
2. Activate manual tracking (service test program step 03) and watch the tape sync pulse move to the left in relation to the TRIV signal.
3. Note the extreme left hand position reached by the sync pulse, repeat as necessary.
4. Stop the movement of the pulse when the TRIV signal reduces to 1/2 to 2/3 maximum amplitude by pressing the normal play button. A noisy picture (disturbances) is visible on the TV set and the CTL pulse should be to the left of the display.
The recorder will hold this position until the service test progam step 03 is left.
This condition works only if X-distance is adjusted.

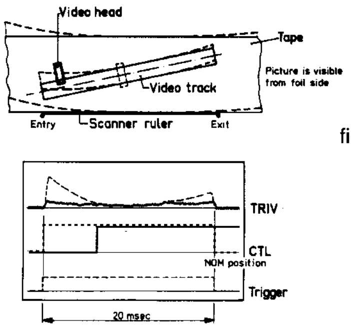

Video head
Tape
Picture is visible from foil side
Video track
Entry
Scanner ruler
Exit
TRIV
CTL
NOM position
Trigger
20 msec

fig. 18

Adjustment:
Adjust the left and right roller units to make the tracking signal TRIV straight and flat as possible (Fig. 18).

4.2.1.2 A/C Combi head

Tilt angle adjustment

Set the drive to feature mode (e.g. +7)
Adjustment :
By means of the tilt angle adjusting screw move the tape until the lower edge just touches the tape guide A1 (see Fig. 19) the tape must not be distorted at the lower edge (by pressing onto guide).

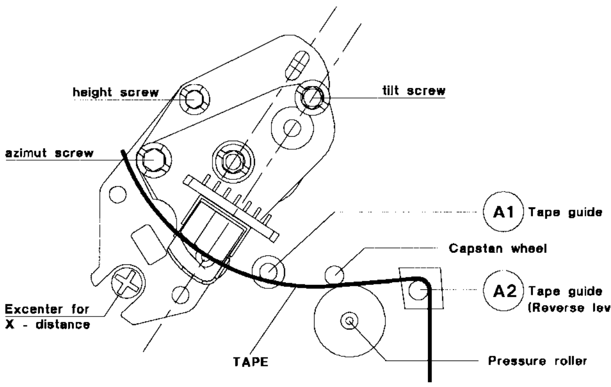

height screw
tilt screw
azimut screw
A1 Tape guide
Capstan wheel
A2 Tape guide (Reverse lever)
Excenter for X - distance
TAPE
Pressure roller

fig.19

Adjustment of the azimuth angle and the head height

Connect an oscilloscope to the linear Audio output.
Play the section of the test cassette with the audio signal 400 Hz.
Adjust for maximum output voltage by means of the height adjustment screw
Play the section of the test cassette with the audio signal 8 kHz.
Adjust to maximum output voltage by means of the azimuth adjustment screw (Fig. 19).
If necessary, repeat this procedure
Check the tilt angle adjustment

If the tape path was completely out of adjustment or if several components in the tape path have been replaced, it is possible, that the adjustments described in paragraph 4.2.1.1 and paragraph 4.2.1.2 have to be repeated several times.

4.2.2 Adjustment of the horizontal distance (x-distance)

Before this adjustment is carried out, insert the test cassette (start from Eject position). Call the service test program (tracking value will take up its nominal position) and press the „play" button. Playback the black/white part of the test cassette.)
Display the TRIV signal on an oscilloscope (DC-coupled) and adjust for maximum voltage by means of the excentric screw (Fig.19).

4.2.3 Brake band and tape tension

Due to further development it is no longer necessary to make theseadjustments after replacement of the brake band.
If the brake band or tape tension are completely misadjusted, set them to a center position; set the drive to „play" and adjust the brake band until the edge of the elbow of the tape tension arm is aligned with the left inner edge of the left guide (fig. 20).

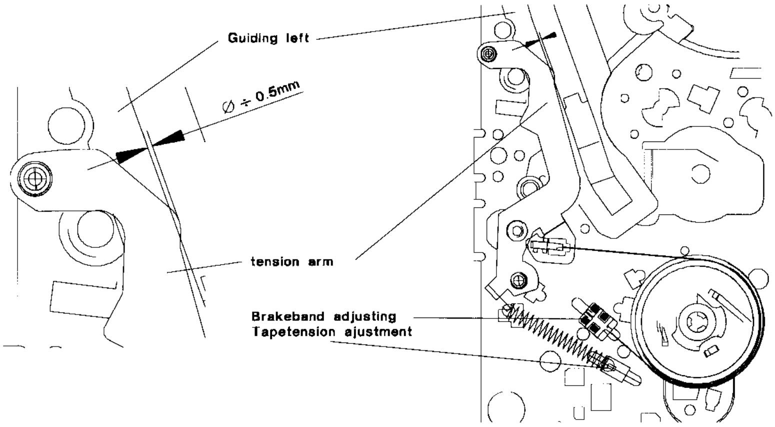
4.2.4 Friction clutch control check

Set the drive to „Play" position.
Place the torquemeter on the right reel.
Turn the capstan motor to move the right reel clockwise.
Keep turning, until the indication at the torquemeter no longer changes (Fig. 21)
The torque has to be 10,5 mNm +/-25% (105gFcm +/-25%)

4.2.5 Reverse brake control

Set the drive to „Reverse" position.
Place a torquemeter on the right reel and turn the latter counterclockwise, until the reel just starts to flip.
The value indicated at the torquemeter has to be 7mNm +/-3mNm (70 gFcm +/-30gFcm) (Fig. 21).

fig. 20



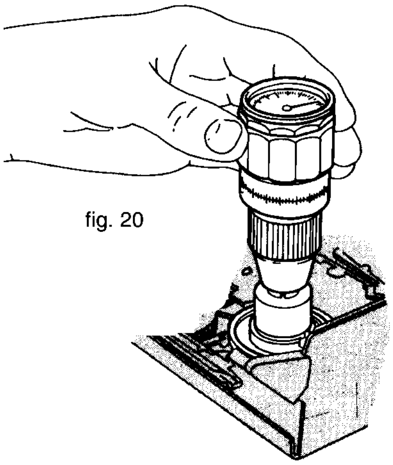
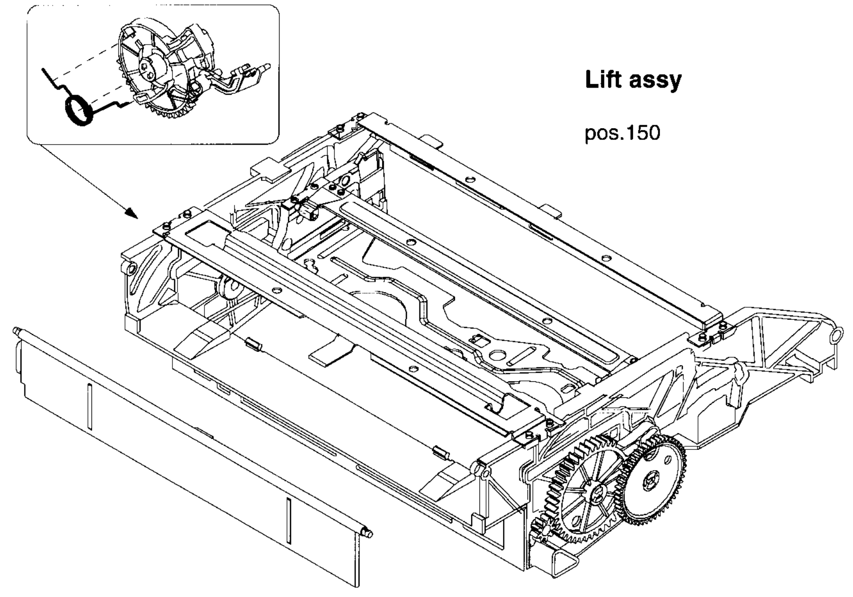


fig. 20

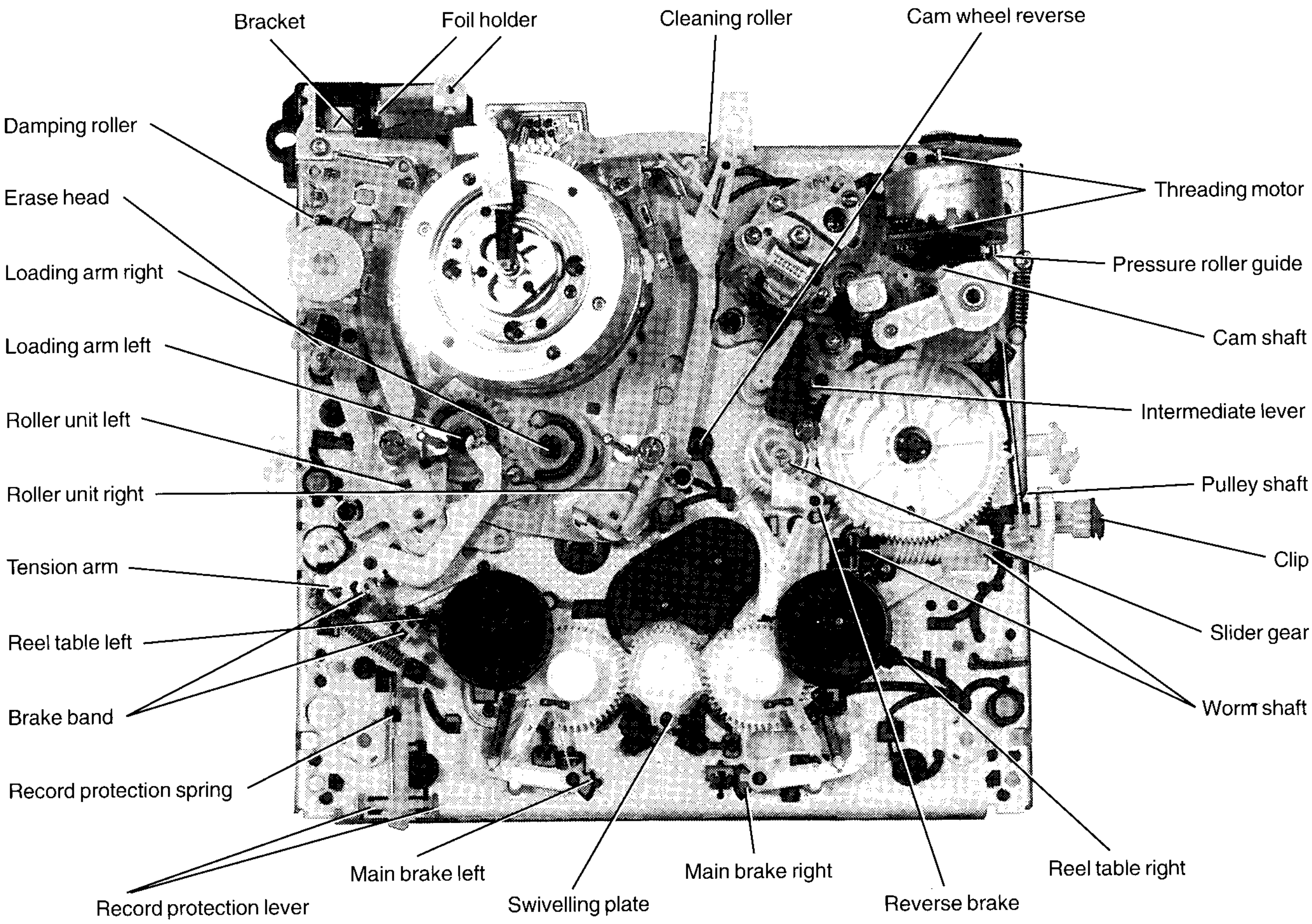


Lift assy

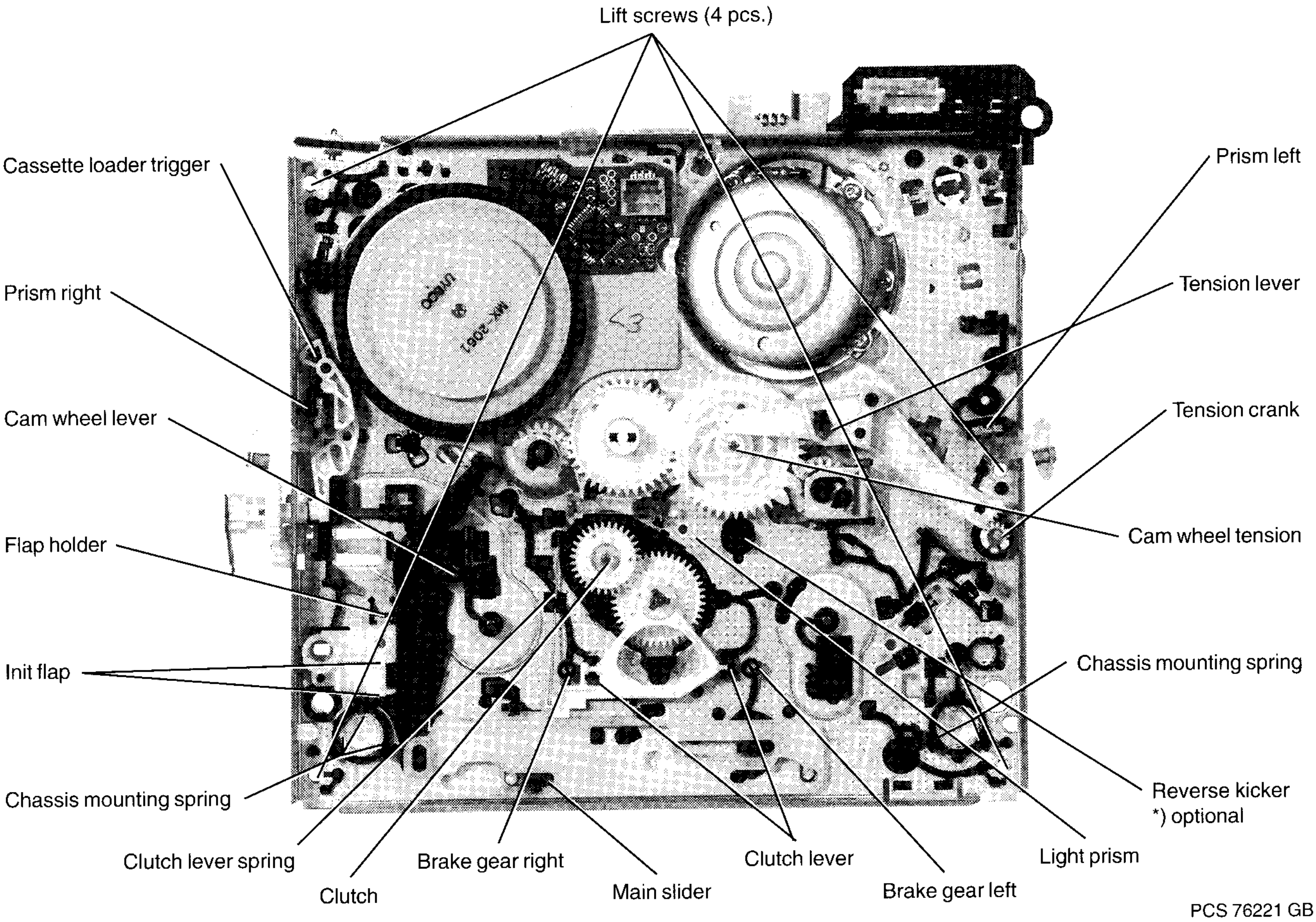
pos.150

In order to make the replacement of the deck parts easier, the snap hooks are marked with an arrow

TOP VIEW


Bracket
Foil holder
Cleaning roller
Cam wheel reverse
Damping roller
Erase head
Loading arm right
Loading arm left
Roller unit left
Roller unit right
Tension arm
Reel table left
Brake band
Record protection spring
Record protection lever
Main brake left
Swivelling plate
Main brake right
Reverse brake
Reel table right
Threading motor
Pressure roller guide
Cam shaft
Intermediate lever
Pulley shaft
Clip
Slider gear
Worm shaft

UNDERSIDE VIEW


Lift screws (4 pcs.)
Cassette loader trigger
Prism right
Cam wheel lever
Flap holder
Init flap
Chassis mounting spring
Clutch lever spring
Clutch
Brake gear right
Main slider
Clutch lever
Brake gear left
Light prism
Reverse kicker
*) optional
Chassis mounting spring
Cam wheel tension
Tension crank
Tension lever
Prism left

4.3 Exploded view

Top view

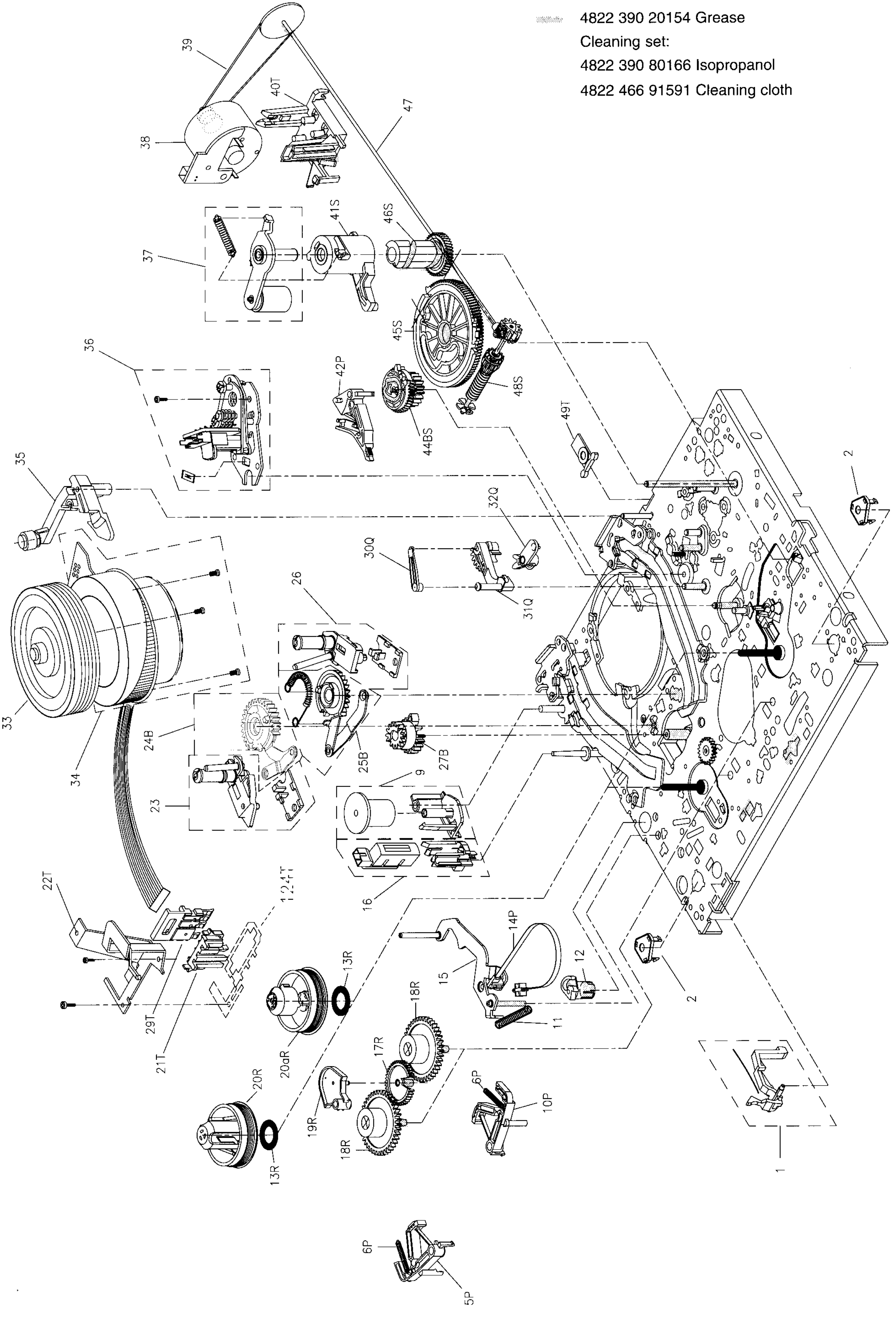
▬ 4822 390 10096 Oil

▨ 4822 390 20154 Grease

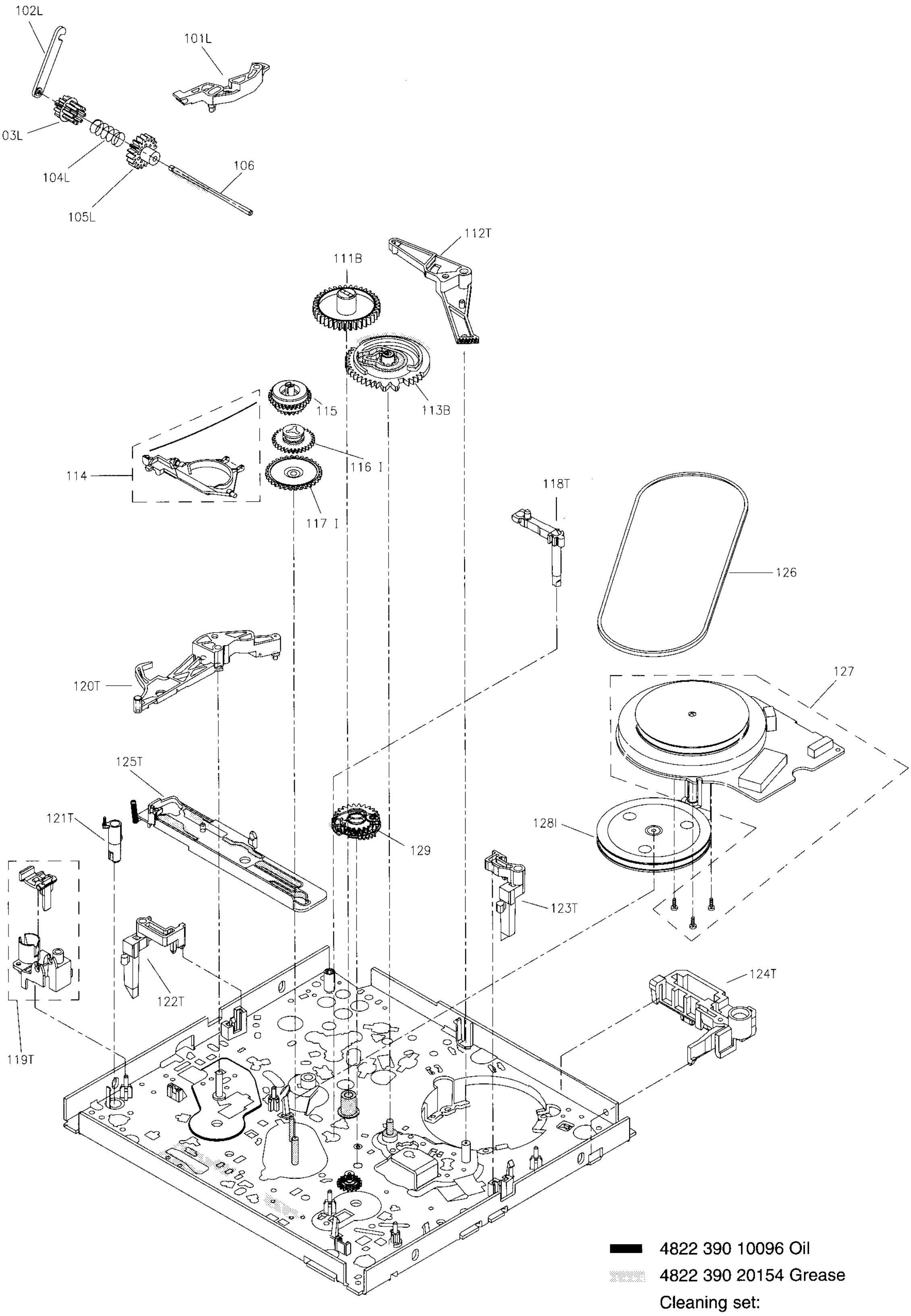
Cleaning set:

4822 390 80166 Isopropanol

4822 466 91591 Cleaning cloth


39
40T
47
38
37
41S
46S
45S
42P
48S
44BS
49T
36
35
2
32Q
30Q
31Q
26
33
24B
25B
27B
9
34
23
16
22T
1,24T
14P
12
15
13R
11
29T
21T
20aR
18R
17R
2
6P
10P
20R
19R
18R
13R
1
6P
5P

Underside viw


102L
101L
103L
104L
106
105L
112T
111B
115
113B
116 I
114
117 I
118T
126
120T
127
125T
121T
128I
129
123T
124T
122T
119T

■ 4822 390 10096 Oil

▨ 4822 390 20154 Grease

Cleaning set:

4822 390 80166 Isopropanol

4822 466 91591 Cleaning cloth

MECHANICAL PARTS LIST

Pos.	Description	KITS								Code number 4822
		B	I	L	P	Q	R	S	T	
1	Rec. protection lever (with spring)									402 10202
2	Chassis mounting spring (2x)									492 71022
5	Main brake left				P					
6	Main brake spring (2x)				P					
9	Damping roller									528 70782
10	Main brake right				P					
11	Tension arm spring									492 33317
12	Tension crank									403 70551
13	Slip ring						R			
14	Tension band				P					
15	Tension arm									403 70547
16	Erase head									249 10522
17	Swivelling gear						R			
18	Brake gear (2x)						R			
19	Swivelling plate						R			
20	Reel table (S)						R			
20a	Reel table (T)						R			
21	Foil holder								T	
22	Bracket								T	
23	Roller unit left									528 70771
24	Loading arm left	B								
25	Loading arm right	B								
26	Roller unit right									528 70772
27	Loading gear	B								
29	Plate								T	
30	Reverse clip					Q				
31	Reverse lever					Q				
32	Intermediate lever					Q				
33	Head disc 4/2									691 10548
33	Head disc 4/2-Secam									691 10551
33	Head disc 4/2/1									691 10548
33	Head disc 4/2/1-Secam									691 10551
33	Head disc 4/2-S-VHS									691 10522
33	Head disc 4/2/1-S-VHS									691 10552
34	Scanner motor 4/2 (with screws)									361 10901
34	Scanner motor 4/2/1 (with screws)									361 10902
35	Cleaning roller									528 70773
36	A/C Head (with clip and screws)									249 10468
37	Pressure roller (with spring)									528 70774
38	Threading motor									361 10809
39	Threading belt									358 20421
40	Motor holder								T	
41	Pressure roller guide							S		
42	Reverse brake				P					
44	Slider gear	B						S		
45	Cam wheel							S		
46	Cam shaft							S		
47	Pulley shaft									528 81462
48	Worm shaft							S		
49	Chassis mounting clip								T	

Pos.	Description	KITS								Code number 4822
		B	I	L	P	Q	R	S	T	
101	Cassette loader trigger			L						
102	Clip			L						
103	Cassette loader gear1			L						
104	Cassette loader spring			L						
105	Cassette loader gear2			L						
106	Spindle									535 93277
111	Cam wheel reverse	B								
112	Tension lever								T	
113	Cam wheel tension	B								
114	Clutch lever (with spring)									403 70549
115	Clutch									528 20736
116	Changing gear		I							
117	Double gear		I							
118	Light prism								T	
119	Init flap and holder								T	
120	Cam wheel lever								T	
121	S-VHS lever								T	
122	Prism rihgt								T	
123	Prism left								T	
124	Holder								T	
125	Main slider								T	
126	Driving belt									358 31166
127	Capstan motor (with screws)									361 10805
129	Reverse kicker with transmission gears *)									522 20451
128	Gear pulley		I							
140	Flex cable									320 40287
150	Lift									443 64112
KIT	B									310 31955
KIT	I									310 31963
KIT	L									310 32116
KIT	P									310 32191
KIT	Q									310 10658
KIT	R									310 10659
KIT	S									310 10661
KIT	T									310 10662

*) optional

Um eine hohen Reparaturstandard zu gewährleisten sind mit Ausnahme von Kit T immer alle im Kit enthaltenen Teile zu tauschen.

In order to guarantee a high repairstandard all spare parts included in a kit have to be replaced with the exception of kit T.

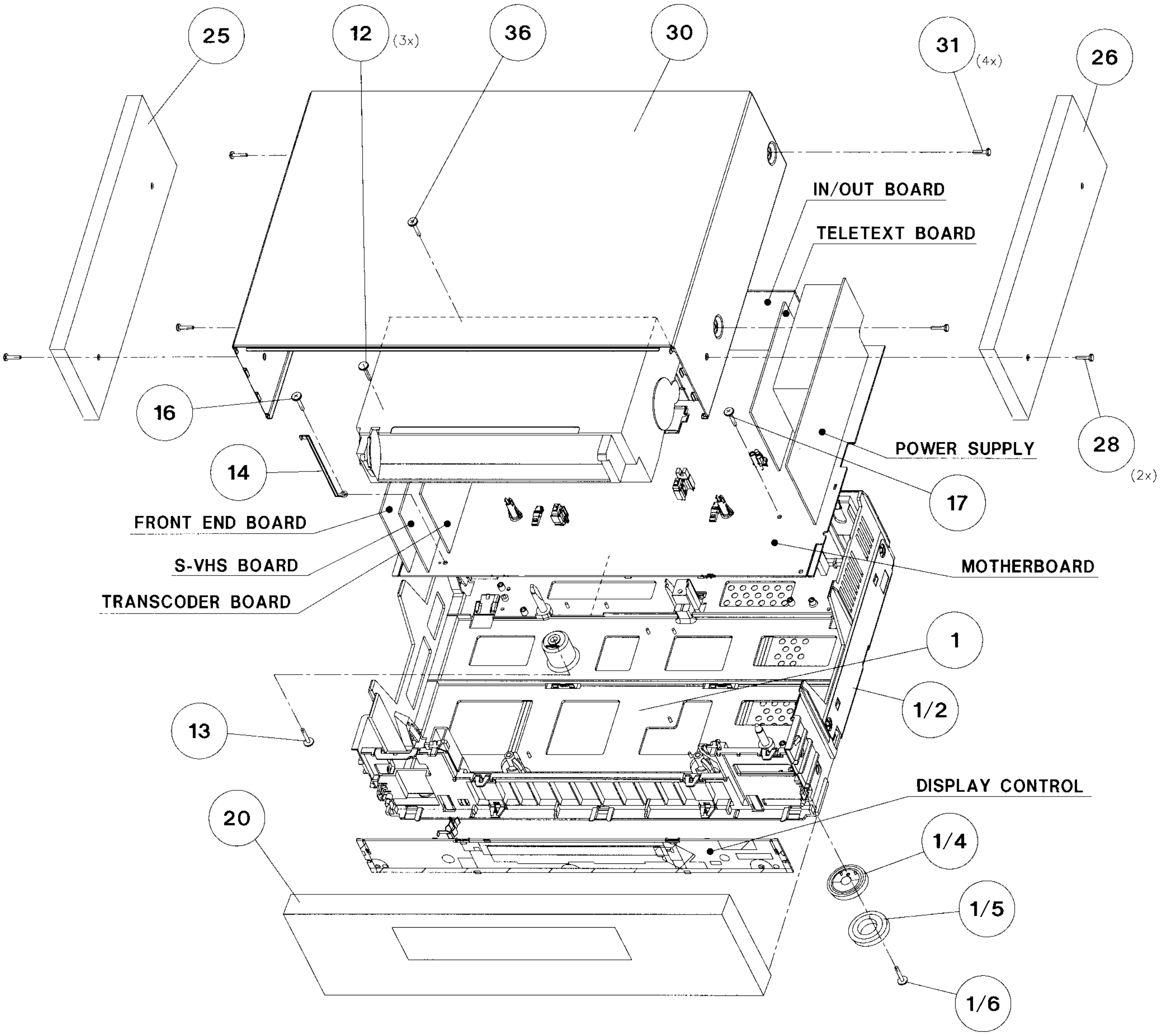
Per una riparazione garantita ocorre sostituire tutti i pezzi contenuti nei kit, fatta eccetione per il kit T.

Para obtener un estandár de reparaciones elevado,es necesario cambiar todas las partes contenidas en el kit, la única exceptión es para el kit T.

A fin d'obtenir un standard de réparations élevé, toutes les pièces de rechange incluses dans un kit sont à remplacer, exception faite du kit T.

Om een hoge reparatiekwaliteit te waarbogen moeten, met uitzondering van kit T, altijd alle zich in een kit bevindende onderdelen worden vervangen.

Exploded View of the set


25
12 (3x)
36
30
31 (4x)
26
IN/OUT BOARD
TELETEXT BOARD
16
14
POWER SUPPLY
28
(2x)
17
FRONT END BOARD
S-VHS BOARD
TRANSCODER BOARD
MOTHERBOARD
1
1/2
13
DISPLAY CONTROL
20
1/4
1/5
1/6

Set Parts List

Pos	Service Code	Description
1	4822 464 10175	FRAME ASSY VR969
1	4822 464 10172	FRAME ASSY VR768
1	4822 464 10178	FRAME ASSY VR967
1/2	4822 442 00278	BOTTOM
1/4	4822 462 10772	FOOT VR969
1/4	4822 462 10771	FOOT VR967
1/5	4822 462 10773	FOOT INLAY VR969
1/6	4822 502 14115	SCREW 3,15X8 ZN GEC
12	4822 502 13884	PLAST.SCREW 3,5X16
13	4822 502 14107	CONTACT CHASSIS SCREW
14	4822 256 10249	PCB-HOLDER TO S-VHS-BOARD
15	4822 256 10249	PCB-HOLDER TO VPT-BOARD
16	4822 502 21349	SCREW 3,15X10 ZN GEC Z R
17	4822 502 14115	SCREW 3,15X8 ZN GEC Z R
25	4822 426 10202	SIDE PANEL LEFT VR969
25	4822 426 10205	SIDE PANEL LEFT VR967
26	4822 426 10203	SIDE PANEL RIGHT VR969
26	4822 426 10206	SIDE PANEL RIGHT VR967
28	4822 502 14315	SCREW M3X12 TAPT SWC Z R
30	4822 442 00421	COVER VR969
30	4822 442 00422	COVER VR768
30	4822 442 00426	COVER VR666, VR668
30	4822 442 00429	COVER VR967
31	4822 502 14109	PLAST. SCREW 3,5X10 BK R
36	4822 502 21545	SCREW 2.5X4 TAPT. T8
150/1	4822 321 10249	MAINS CORD
150/1	4822 321 10886	MAINS CORD (+FUSE) for UK
150/2	4822 320 50377	CONNECTING CABLE PAL
150/3	4822 321 62402	S-VHS CABLE
150/4	4822 321 63006	SCART CABLE (WITH PIN10)
9501	4822 320 11498	FFC ASSY 6 POL.(TD-1501)
9503	4822 320 11483	FLAT FLEX CABLE SCR 7 POL
9508	4822 320 11484	FLAT FLEX CABLE 3 POL
9510	4822 320 11499	FLAT FLEX CABLE 19 POL
9516	4822 320 11501	FLAT FLEX CABLE 10 POL
9526	4822 320 11485	FLAT FLEX CABLE 18 POL
9538	4822 265 10637	RS 232 SOCKET ASSY
	4822 310 10748	Extension Adapter S-VHS Board

Front Panels

Pos	Service Code	Description
20/1	4822 459 04217	FRONT PANEL VR666/02
20/1	4822 459 04216	FRONT PANEL VR666/16
20/1	4822 459 04214	FRONT PANEL VR666/39
20/1	4822 459 04218	FRONT PANEL VR668/02
20/1	4822 459 04219	FRONT PANEL VR668/05
20/1	4822 459 04221	FRONT PANEL VR668/06/16
20/1	4822 459 04209	FRONT PANEL VR668/39
20/1	4822 459 04215	FRONT PANEL VR768/02
20/1	4822 459 04206	FRONT PANEL VR768/05
20/1	4822 459 04205	FRONT PANEL VR768/16/59
20/1	4822 459 04199	FRONT PANEL VR768/39
20/1	4822 459 04208	FRONT PANEL VR967/02
20/1	4822 459 04207	FRONT PANEL VR967/16/58
20/1	4822 459 04204	FRONT PANEL VR967/39
20/1	4822 459 04222	FRONT PANEL VR969/02
20/1	4822 459 04223	FRONT PANEL VR969/05/16/58
20/1	4822 459 04202	FRONT PANEL VR969/39

Front Panel VR666

Pos	Service Code	Description
20/1/6	4822 443 10357	LIFT FLAP VR666/39
20/1/6	4822 443 10356	LIFT FLAP VR666/02/16
20/1/7	4822 492 70896	LEG SPRING LIFT FLAP
20/3	4822 502 11839	PLAST.SCREW 2,9X8 VR666, VR668
20/10	4822 277 11576	DECK CONTROL UNIT VR666
20/11	4822 502 11839	PLAST.SCREW 2,9X8 VR666, VR668

Front Panel VR668

Pos	Service Code	Description
20/1/6	4822 443 10358	LIFT FLAP VR668/39
20/1/6	4822 443 10359	LIFT FLAP VR668/02/05/06/16
20/1/7	4822 492 70896	LEG SPRING LIFT FLAP
20/1/12	4822 443 10361	FLAP VR668
20/3	4822 502 11839	PLAST.SCREW 2,9X8 VR666, VR668
20/10	4822 277 11576	DECK CONTROL UNIT VR668
20/11	4822 502 11839	PLAST.SCREW 2,9X8 VR666, VR668

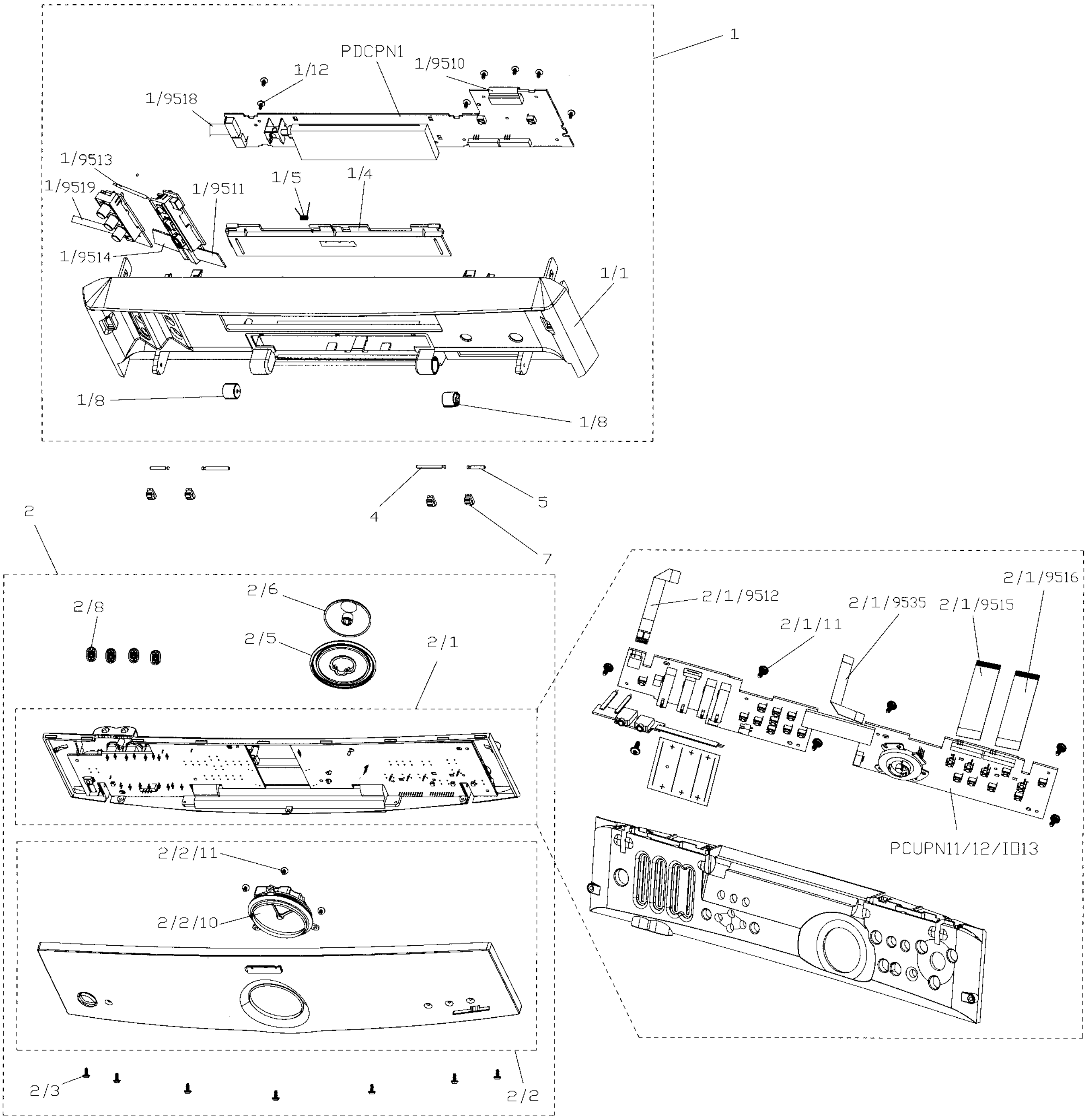
Front Panel VR768

Pos	Service Code	Description
20/5	4822 442 00423	FLAP VR768
20/6	4822 443 10339	LIFT FLAP VR768/02/05/16/59
20/6	4822 443 10331	LIFT FLAP VR768/39
20/7	4822 410 10565	KNOB JOG VR768
20/8	4822 492 70896	LEG SPRING LIFT FLAP
20/9	4822 410 10566	BUTTON SET TOP ASSY VR768
20/10	4822 410 10567	KNOB SHUTTLE ASSY VR768
20/11	4822 502 13886	SCR PAN TORX ST ZN BK 2X6 VR768
20/12	4822 502 30685	SCR PAN TORX ST ZN BK 2X8 VR768
20/13	4822 320 11482	FLAT FLEX CABLE 19 P VR768

Front Panel VR967

Pos	Service Code	Description
20/5	4822 443 10347	LIFT FLAP VR967
20/6	4822 442 00427	FLAP VR967
20/7	4822 442 00428	CORNER PIECE L/R VR967
20/8	4822 492 70896	LEG SPRING LIFT FLAP
20/9	4822 502 30685	SCR PAN TORX ST ZN BK 2X8 VR967
20/10	4822 502 30408	SCR PAN TORX ST ZN BK3X10 VR967

Exploded View Front Panel VR969 (Pos. 20)


1
PDCPN1
1/12
1/9510
1/9518
1/9513
1/9519
1/9511
1/5
1/4
1/9514
1/1
1/8
1/8
4
5
7
2
2/6
2/8
2/5
2/1
2/1/9512
2/1/9535
2/1/9515
2/1/9516
2/1/11
PCUPN11/12/I013
2/2/11
2/2/10
2/3
2/2

Pos	Service Code	Description
20/1/4	4822 443 10365	LIFT FLAP VR969
20/1/5	4822 492 70896	LEG SPRING LIFT FLAP
20/1/8	4822 529 10368	DAMPER ASSY VR969
20/1/9510	4822 320 11499	FLAT FLEX CABLE 19POL VR969
20/2/1	4822 443 10336	FLAP INSIDE ASSY VR969/39
20/2/1	4822 443 10362	FLAP INSIDE ASSY VR969/02/05/16/58
20/2/1/11	4822 502 14317	SCREW 2,35X6 ZN SWC ZR VR969
20/2/1/9512	4822 320 11517	FLAT FLEX CABLE SCR 7 POL VR969
20/2/1/9515	4822 320 11518	FLAT FLEX CABLE 20 POL VR969
20/2/1/9516	4822 320 11518	FLAT FLEX CABLE 20 POL VR969
20/2/1/9535	4822 320 11519	FLAT FLEX CABLE 8 POL VR969
20/2/2	4822 443 10366	FLAP OUTSIDE ASS.VR969/39
20/2/2	4822 443 10363	FLAP OUTSIDE ASS.VR969/02/16/58
20/2/2	4822 443 10369	FLAP OUTSIDE ASS.VR969/05
20/2/2/10	4822 344 14001	ANALOG CLOCK W735 (JUNGH) VR969
20/2/2/11	4822 502 14317	SCREW 2,35X6 ZN SWC ZR VR969
20/2/3	4822 502 14317	SCREW 2,35X6 ZN SWC ZR VR969
20/2/5	4822 410 10592	SHUTTLE KNOB VR969
20/2/6	4822 410 10593	JOG KNOB VR969
20/2/8	4822 410 10594	SLIDE KNOB VR969
20/4	4822 535 10318	SHAFT VR969
20/5	4822 535 10315	SHAFT VR969
20/7	4822 500 10516	SAFETY BOLT VR969

Power Supply PSM

MISCELLANEOUS

0010	4822 256 30514	FUSE HOLDER
0011	4822 256 30514	FUSE HOLDER
1010 ⚠	4822 070 31252	2181.25(1.25A)

CONNECTORS

0008 ⚠	4822 267 31064	MAINS CONNECTOR
1509	4822 265 10484	PIN ASSY 18P

CAPACITORS

2012	4822 121 10524	910	pF	100V
2014	4822 124 11559	2.2	µF	50V
2016	4822 121 42687	3,3	nF	63V
2018	4822 121 51299	1	nF	50V
2026	4822 121 51299	1	nF	50V
2030	5322 121 42386	100	nF	63V
2032	5322 121 42386	100	nF	63V
2036	4822 124 80874	47	µF	50V
2042	4822 121 70481	47	nF	400V
2050 ⚠	4822 121 70674	68	nF	250V
2052 ⚠	4822 121 70674	68	nF	250V
2054 ⚠	4822 126 13859	470	pF	250V
2056 ⚠	4822 126 13859	470	pF	250V
2059 ⚠	4822 126 13859	470	pF	250V
2060	4822 121 10525	330	nF	100V
2062	4822 124 80875	220	µF	25V
2064	5322 121 42661	330	nF	63V
2068	4822 124 80874	47	µF	50V
2069	4822 122 31175	1	nF	500V
2070 ⚠	4822 124 11561	47	µF	400V
2074	5322 121 42386	100	nF	63V
2076	4822 124 80874	47	µF	50V
2080	5322 121 42578	100	nF	250V
2081	4822 124 41751	470	µF	50V
2084	4822 124 41747	680	µF	35V
2085	4822 124 80874	47	µF	50V
2088	4822 124 80875	220	µF	25V
2090	4822 124 80875	220	µF	25V
2092	5322 121 42386	100	nF	63V
2096	4822 122 31116	2	nF	400V
2098	4822 124 41747	680	µF	35V
2099	4822 124 41747	680	µF	35V

RESISTORS

3010	4822 116 83864	10	k	0,5W
3012	4822 050 11002	1	k	0,4W
3014	4822 050 13902	3,9	k	0,4W
3016	4822 116 52244	15	k	0,5W
3018	4822 116 52257	22	k	0,5W
3020	4822 116 52251	18	k	1/6W
3022	4822 050 11003	10	k	0,4W
3026	4822 116 52228	680	R	0,5W
3028	4822 116 52304	82	k	0,5W
3030	4822 116 52303	8,2	k	0,5W
3032	4822 116 52186	22	R	0,5W only for S-VHS
3032	4822 116 52195	47	R	0,5W
3034	4822 116 52202	82	R	0,5W
3040	4822 116 52283	4,7	k	0,5W
3041	4822 050 23309	33	R	0,6W
3042	4822 050 21003	10	k	0,6W
3043	4822 050 21003	10	k	0,6W
3044	4822 050 21003	10	k	0,6W
3046	4822 050 21808	1,8	R	0,6W
3048	4822 050 21508	1,5	R	0,6W
3050	4822 116 83882	39	k	0,5W
3052	4822 116 83882	39	k	0,5W
3054	4822 050 21005	1	M	0,6W
3055	4822 050 21005	1	M	0,6W
3056	4822 050 21005	1	M	0,6W
3057	4822 050 21005	1	M	0,6W
3058 ⚠	4822 053 21395	3,9	M	0,5W
3059 ⚠	4822 053 21395	3,9	M	0,5W
3060	4822 116 83872	220	R	0,5W
3061	4822 157 60147	IND FIX HF-BEAD		
3062	4822 116 83864	10	k	0,5W
3063	4822 116 83872	220	R	0,5W
3064	4822 116 52283	4,7	k	0,5W
3067	4822 116 83872	220	R	0,5W
3068	4822 116 52186	22	R	0,5W
3069	4822 050 24708	4,7	R	1/8W
3070	4822 116 83872	220	R	0,5W
3071	4822 116 52199	68	R	1/6W
3072	4822 050 11002	1	k	0,4W
3073	4822 116 52234	100	k	1/6W
3074	4822 116 52289	5,6	k	0,5W
3075	4822 116 52291	56	k	1/6W
3076	4822 116 52263	2,7	k	1/6W
3077	4822 116 52259	2,4	k	1/6W
3078	4822 100 12163	470	R	
3080 ⚠	4822 052 10479	47	R	
3081	4822 116 52226	560	R	1/6W
3082	4822 116 52283	4,7	k	1/6W
3083	4822 116 52226	560	R	1/6W
3084	4822 116 52283	4,7	k	1/6W
3085	4822 116 52226	560	R	1/6W
3086	4822 116 52234	100	k	1/6W
3087	4822 050 15603	56	k	
3088	4822 116 52291	56	k	1/6W
3089	4822 050 15603	56	k	
3090	4822 050 23902	3,9	k	0,6W
3092	4822 050 11002	1	k	0,4W
3094	4822 116 52245	150	k	0,5W
3096	4822 116 52234	100	k	0,5W
3098	4822 116 52291	56	k	0,5W
3099	4822 116 52283	4,7	k	1/6W

COILS

5010 ⚠	4822 157 10454	Mains Filter
5050 ⚠	4822 146 10529	TRAFO PCT 13205-12/14 VERS.D
5069	4822 157 60147	2,2 µH
5080	4822 157 71461	22 µH 10%
5081	4822 157 52285	6,8 µH
5088	4822 157 71461	22 µH 10%
5090	4822 157 71461	22 µH 10%
5098	4822 157 71461	22 µH 10%

DIODES

6032	4822 130 31631	BYV10-20
6036	4822 130 30842	BAV21
6042	4822 130 10439	BY268 A
6046 ⚠	4822 130 31438	1N4001G
6048 ⚠	4822 130 31438	1N4001G
6050	5322 209 12018	DF08M
6076	4822 130 82885	BYT52M
6080	4822 130 83909	BYW98-200RL
6081	4822 130 82885	BYT52M
6082	4822 130 82885	BYT52M
6084	4822 130 10456	BZX79-B32
6088	4822 130 83909	BYW98-200RL
6092	4822 130 83909	BYW98-200RL
6096	4822 130 10455	DIO REC MBR1060 S only S-VHS
6098	4822 130 83934	MBR360 only for VHS

TRANSISTORS & IC's

7020	4822 209 90025	MC44603P
7040	4822 130 63794	STP3NA60
7050	4822 130 44503	BC547C
7056	4822 130 44503	BC547C
7058	4822 130 41344	BC337-40
7060	4822 130 41327	BC327-40
7070 ⚠	4822 209 32126	SOC1012T
7074	4822 209 81397	TL431CLPST
7084	4822 130 44503	BC547C
7085	4822 209 81397	TL431CLPRE
7088	4822 209 72742	L7812ACV
7090	4822 130 10237	MTD3055V1
7096	4822 130 44503	BC547C

⚠ ... Safety component, use only this type

Frontend Board PAL BG/I

MISCELLANEOUS

1030	4822 242 10457	OFWJ3652K (38MHZ9) only PAL I
1030	4822 242 10436	OFWG3355K only for PAL BG
1040	4822 157 10584	IND VAR 38MHZ9
1050	4822 242 70279	SFE6,0MB only for PAL I
1050	4822 242 72239	SFE5,5MC only for PAL BG
1070	4822 242 81257	SFE5,74MC-TP21 only for PAL BG
1110	4822 242 10458	TPS6,0MD-TF21 only for PAL I
1110	4822 242 72211	TPS5,5MW only for PAL BG
1120	4822 242 80276	KD0292FRC 10MHZ only PAL BG
1140	4822 242 10433	(8,192MHZ) only for NICAM
1624	4822 267 10463	XCONN. 10P
1625	4822 267 10464	CONN. 15P

CAPACITORS

2002	4822 122 33177	10	nF	50V
2010	4822 122 33177	10	nF	50V only for PAL I
2011	5322 124 41431	22	µF	35V
2015	5322 124 41431	22	µF	35V only for PAL BG
2017	4822 124 40763	2,2	µF	100V
2019	4822 122 33177	10	nF	50V
2025	4822 122 33177	10	nF	50V
2033	5322 121 42386	100	nF	63V
2039	4822 126 13176	100	nF	25V
2040	4822 122 33177	10	nF	50V
2045	4822 122 33177	10	nF	50V
2048	4822 124 81029	100	µF	25V
2049	4822 124 40763	2,2	µF	100V
2050	4822 122 33177	10	nF	50V
2052	4822 122 33177	10	nF	50V
2063	4822 124 40763	2,2	µF	100V only for PAL BG
2065	4822 124 40763	2,2	µF	100V only for PAL BG
2069	4822 126 10326	180	pF	63V only for PAL BG
2070	4822 121 70344	4,7	nF	63V only for PAL BG
2080	4822 126 13953	6	pF	
2082	4822 122 33177	10	nF	50V
2085	4822 124 81029	100	µF	25V only for PAL BG
2090	4822 122 33177	10	nF	50V only for PAL BG
2092	4822 122 33177	10	nF	50V only for PAL BG
2095	4822 124 40763	2,2	µF	100V only for NICAM
2097	4822 124 40763	2,2	µF	100V only for NICAM
2100	4822 124 11559	2.2	µF	50V
2101	4822 126 13176	100	nF	25V only for PAL BG
2102	4822 124 41579	10	µF	50V only for PAL BG
2103	4822 122 33177	10	nF	50V only for PAL BG
2104	4822 124 40433	47	µF	25V only for NICAM
2105	4822 121 42408	220	nF	63V
2106	4822 122 33177	10	nF	50V only for NICAM
2123	4822 122 33177	10	nF	50V
2125	5322 124 41431	22	µF	35V
2190	4822 124 40433	47	µF	25V only for NICAM
2192	4822 122 33177	10	nF	50V only for NICAM
2195	4822 124 41579	10	µF	50V only for NICAM
2197	4822 122 33177	10	nF	50V only for NICAM
2200	4822 124 41579	10	µF	50V only for NICAM
2202	4822 122 33177	10	nF	50V only for NICAM
2210	4822 122 33177	10	nF	50V only for NICAM
2212	5322 126 10511	1	nF	50V only for NICAM
2214	5322 122 32966	39	pF	50V only for NICAM
2215	4822 124 41579	10	µF	50V only for NICAM
2218	4822 122 33177	10	nF	50V only for NICAM
2221	5322 126 10511	1	nF	50V only for NICAM
2228	5322 126 10511	1	nF	50V only for NICAM
2229	4822 122 33575	220	pF	50V only for NICAM
2235	4822 121 43526	47	nF	only for NICAM
2243	4822 121 51252	470	nF	only for NICAM
2245	4822 124 40763	2,2	µF	100V only for PAL I
2247	4822 122 33575	220	pF	50V only for NICAM
2249	4822 124 41579	10	µF	50V only for NICAM
2251	4822 124 41579	10	µF	50V only for NICAM
2253	5322 121 42661	330	nF	63V only for NICAM
2255	4822 121 41856	22	nF	250V only for NICAM
2257	5322 122 32531	100	pF	50V only for NICAM
2259	5322 122 32531	100	pF	50V only for NICAM
2261	4822 122 33177	10	nF	50V only for NICAM
2263	5322 124 41431	22	µF	35V only for NICAM
2265	4822 124 40763	2,2	µF	100V only for PAL I
2269	4822 124 40433	47	µF	25V only for NICAM
2270	4822 122 33177	10	nF	50V only for NICAM
2273	4822 124 41579	10	µF	50V only for NICAM
2274	5322 122 32268	470	pF	50V only for NICAM
2275	5322 126 10511	1	nF	50V only for NICAM
2287	4822 122 33177	10	nF	50V only for NICAM
2288	4822 124 41579	10	µF	50V only for NICAM
2290	4822 124 40433	47	µF	25V only for NICAM
2292	4822 122 33177	10	nF	50V only for NICAM
2294	4822 124 40433	47	µF	25V only for NICAM
2296	4822 122 33177	10	nF	50V only for NICAM
2298	5322 124 41431	22	µF	35V only for NICAM
2300	4822 124 41579	10	µF	50V only for NICAM
2302	5322 126 10511	1	nF	50V only for NICAM
2304	5322 122 32268	470	pF	50V only for NICAM
2306	4822 124 41579	10	µF	50V only for NICAM

RESISTORS

3002	4822 051 20104	100	k	0,1W
3007	4822 051 20561	560	R	0,1W only for PAL BG
3009	4822 051 20471	470	R	0,1W only for PAL I
3009	4822 051 20561	560	R	0,1W only for PAL BG
3010	4822 051 20562	5,6	k	0,1W only for PAL BG
3020	4822 051 20331	330	R	0,1W
3039	4822 051 20223	22	k	0,1W
3040	4822 051 20223	22	k	0,1W
3045	4822 051 20104	100	k	0,1W
3050	4822 051 20472	4,7	k	0,1W
3052	4822 051 20472	4,7	k	0,1W
3055	4822 051 20181	180	R	0,1W
3060	4822 051 20472	4,7	k	0,1W only for PAL BG
3063	4822 051 20562	5,6	k	0,1W only for PAL BG
3065	4822 051 20472	4,7	k	0,1W only for PAL BG
3067	4822 051 20562	5,6	k	0,1W only for PAL BG
3069	4822 051 20273	27	k	0,1W only for PAL BG
3093	4822 051 20008	0	R	0,1W only for PAL I
3094	4822 051 20008	0	R	only for PAL I
3095	4822 051 20008	0	R	0,1W only for NICAM
3105	4822 051 20471	470	R	0,1W
3106	4822 051 20101	100	R	0,1W only for PAL BG
3107	4822 051 20101	100	R	0,1W only for PAL BG
3109	4822 051 20101	100	R	0,1W only for PAL I
3111	4822 051 20331	330	R	0,1W
3112	4822 051 20008	0	R	0,1W
3115	4822 117 11449	2,2	k	0,1W
3116	4822 051 20272	2,7	k	0,1W
3117	4822 051 20681	680	R	0,1W
3142	4822 117 11383	12	k	0,1W only for NICAM
3199	4822 117 10833	10	k	0,1W only for NICAM
3210	4822 051 20181	180	R	0,1W only for NICAM
3214	4822 051 20101	100	R	0,1W only for NICAM
3215	4822 051 10102	1	k	0,25W only for NICAM
3222	4822 051 20822	8,2	k	0,1W only for NICAM
3224	4822 051 20101	100	R	0,1W only for NICAM
3225	4822 051 20101	100	R	0,1W only for NICAM
3228	4822 051 20829	82	R	0,1W only for NICAM
3234	4822 051 20333	33	k	0,1W only for NICAM
3235	4822 051 20182	1,8	k	0,1W only for NICAM
3238	4822 051 20101	100	R	0,1W only for NICAM
3240	4822 051 20101	100	R	0,1W only for NICAM
3243	4822 051 20684	680	k	0,1W only for NICAM
3253	4822 051 20223	22	k	0,1W only for NICAM
3255	4822 051 20104	100	k	0,1W only for NICAM
3267	4822 051 20473	47	k	0,1W only for NICAM
3271	4822 051 20154	150	k	0,1W only for NICAM
3273	4822 051 20393	39	k	0,1W only for NICAM
3275	4822 117 10833	10	k	0,1W only for NICAM
3277	4822 117 10833	10	k	0,1W only for NICAM
3280	4822 051 20393	39	k	0,1W only for NICAM
3282	4822 051 20393	39	k	0,1W only for NICAM
3285	4822 051 20223	22	k	0,1W only for NICAM
3300	4822 051 20223	22	k	0,1W only for NICAM
3302	4822 117 10833	10	k	0,1W only for NICAM
3304	4822 117 10833	10	k	0,1W only for NICAM
3305	4822 051 20473	47	k	0,1W only for NICAM
3306	4822 051 20393	39	k	0,1W only for NICAM
3308	4822 051 20393	39	k	0,1W only for NICAM
3309	4822 051 20393	39	k	0,1W only for NICAM
3310	4822 051 20154	150	k	0,1W only for NICAM

Frontend Board PAL BG/I; Multistandard

COILS

5000	4822 157 10592	0,68UH 20%
5000	4822 157 11018	1UH 10%
5020	4822 157 71245	15UH 10%
5050	4822 157 71686	12U 10%
5070	4822 157 70677	1,8MUH only for PAL BG
5190	4822 157 71245	15UH 10% only for NICAM
5210	4822 157 71245	15UH 10% only for NICAM
5255	4822 157 63717	6,8MUH only for NICAM
5263	4822 157 71245	15UH 10% only for NICAM
5270	4822 157 71245	15UH 10% only for NICAM
5285	4822 157 71245	15UH 10% only for NICAM

DIODES

6243	4822 130 30621	1N4148 only for NICAM
6255	4822 130 10712	BB159 only for NICAM

TRANSISTORS & IC's

7002	5322 130 41983	BC858B
7050	4822 209 90431	TDA9813T/V2
7100	4822 209 32501	TDA9840/V2 only for PAL BG
7115	5322 130 41983	BC858B
7143	5322 130 41983	BC858B
7200	4822 209 12906	SAA7283GP/M2 only for NICAM
7225	5322 130 42718	BFS20 only for NICAM
7275	4822 209 30419	BA4560F-E1 only for NICAM
7305	4822 209 30419	BA4560F-E1 only for NICAM

Frontend Board Multistandard

MISCELLANEOUS

1005	4822 242 10431	EFCVA4045T(40,4MHZ) SECAM L
1010	4822 242 81854	B39389-G9353-M100 for SECAM L
1020	4822 242 82116	OFWL9455M only for SECAM L
1020	4822 242 82233	OFWK9460M for SECAM BG/DK
1025	4822 242 10432	TPS6,5MD-TF21 only for NICAM
1030	4822 242 81632	OFWK6260 only for SECAM L
1030	4822 242 80295	OFWG3962M for SECAM BG/DK
1040	4822 157 10584	IND VAR 38MHZ9
1050	4822 242 72239	SFE5,5MC
1060	4822 242 70279	SFE6,0MB only for SECAM L
1060	4822 242 72057	SFE6,5MBF for SECAM BG/DK
1070	4822 242 81257	SFE5,74MC-TP21
1080	4822 242 82234	SFE6,25 for SECAM BG/DK
1090	4822 242 82121	TPS5.85MB9
1100	4822 242 10432	TPS6,5MD-TF21 for SECAM L
1110	4822 242 72211	TPS5,5MW
1120	4822 242 80276	KD0292FRC (10MHZ)
1140	4822 242 10433	(8,192MHZ) only for NICAM

CONNECTORS

1624	4822 267 10463	XCONN. 10P
1625	4822 267 10464	CONN. 15P

CAPACITORS

2002	4822 122 33177	10	nF	50V
2003	5322 124 41431	22	μF	35V
2005	4822 122 33177	10	nF	50V
2007	4822 122 33177	10	nF	50V only for SECAM L
2009	4822 122 33177	10	nF	50V
2010	4822 122 33177	10	nF	50V
2011	5322 122 31946	27	pF	63V
2011	4822 051 20008	0		50V
2012	5322 126 10511	1	nF	50V
2028	4822 122 33177	10	nF	50V only for SECAM L
2030	4822 124 11559	2.2	μF	50V
2040	4822 122 33177	10	nF	50V only for SECAM L
2045	4822 122 33177	10	nF	50V
2049	4822 124 40763	2,2	μF	
2050	4822 122 33177	10	nF	50V only for SECAM L
2052	4822 122 33177	10	nF	50V
2054	4822 122 33177	10	nF	50V
2055	4822 122 33177	10	nF	50V
2080	4822 126 13953	6	pF	
2085	5322 124 41431	22	μF	35V
2087	5322 124 41431	22	μF	35V
2088	4822 124 40763	2,2	μF	100V
2090	4822 122 33177	10	nF	50V
2092	4822 124 40433	47	μF	25V
2099	4822 122 33177	10	nF	50V
2102	5322 121 42386	100	nF	63V
2104	4822 124 40433	47	μF	25V only for NICAM
2105	4822 121 42408	220	nF	63V
2106	4822 122 33177	10	nF	50V only for NICAM
2107	4822 122 33177	10	nF	50V
2108	4822 126 13176	100	nF	25V
2117	4822 124 41579	10	μF	50V only for SECAM L
2120	4822 124 40763	2,2	μF	100V
2123	4822 124 40763	2,2	μF	100V
2128	4822 126 10326	180	pF	63V
2130	4822 121 70344	4,7	nF	63V
2131	4822 126 13176	100	nF	25V
2133	4822 124 41579	10	μF	50V
2135	4822 122 33177	10	nF	50V
2137	4822 122 33336	8,2	nF	50V only for SECAM L
2138	4822 122 33175	2,2	nF	50V only for SECAM L
2138	4822 122 33177	10	nF	50V for SECAM BG/DK
2143	4822 122 33177	10	nF	50V
2145	4822 124 81029	100	μF	25V
2147	4822 122 33177	10	nF	50V
2148	4822 124 81029	100	μF	25V
2159	5322 122 31946	27	pF	63V
2160	4822 122 33177	10	nF	50V
2162	5322 124 41431	22	μF	35V
2164	5322 124 41431	22	μF	35V only for SECAM L
2165	4822 122 33177	10	nF	50V only for SECAM L
2168	4822 122 33336	8,2	nF	50V only for SECAM L
2170	4822 122 33175	2,2	nF	50V only for SECAM L
2170	4822 122 33177	10	nF	50V for SECAM BG/DK
2172	4822 122 33177	10	nF	50V
2175	4822 124 40763	2,2	μF	100V
2177	4822 124 40763	2,2	μF	100V
2190	4822 124 40433	47	μF	25V only for NICAM
2192	4822 122 33177	10	nF	50V only for NICAM
2195	4822 124 41579	10	μF	50V only for NICAM
2197	4822 122 33177	10	nF	50V only for NICAM
2200	4822 124 41579	10	μF	50V only for NICAM
2202	4822 122 33177	10	nF	50V only for NICAM
2210	4822 122 33177	10	nF	50V only for NICAM
2212	5322 126 10511	1	nF	50V only for NICAM
2214	5322 122 32966	39	pF	50V only for NICAM
2215	4822 124 41579	10	μF	50V only for NICAM
2218	4822 122 33177	10	nF	50V only for NICAM
2221	5322 126 10511	1	nF	50V only for NICAM
2228	5322 126 10511	1	nF	50V only for NICAM
2229	4822 122 33575	220	pF	50V only for NICAM
2235	4822 121 43526	47	nF	only for NICAM
2243	4822 121 51252	470	nF	only for NICAM
2247	4822 122 33575	220	pF	50V only for NICAM
2249	4822 124 41579	10	μF	50V only for NICAM
2251	4822 124 41579	10	μF	50V only for NICAM
2253	5322 121 42661	330	nF	63V only for NICAM
2255	4822 121 41856	22	nF	250V only for NICAM
2257	5322 122 32531	100	pF	50V only for NICAM
2259	5322 122 32531	100	pF	50V only for NICAM
2261	4822 122 33177	10	nF	50V only for NICAM
2263	5322 124 41431	22	μF	35V only for NICAM
2269	4822 124 40433	47	μF	25V only for NICAM
2270	4822 122 33177	10	nF	50V only for NICAM
2273	4822 124 41579	10	μF	50V only for NICAM
2274	5322 122 32268	470	pF	50V only for NICAM
2275	5322 126 10511	1	nF	50V only for NICAM
2285	4822 124 41579	10	μF	50V only for NICAM
2287	4822 122 33177	10	nF	50V only for NICAM
2290	4822 124 40433	47	μF	25V only for NICAM

Frontend Board Multistandard

2292	4822 122 33177	10	nF	50V only for NICAM
2294	4822 124 40433	47	µF	25V only for NICAM
2296	4822 122 33177	10	nF	50V only for NICAM
2298	5322 124 41431	22	µF	35V only for NICAM
2300	4822 124 41579	10	µF	50V only for NICAM
2302	5322 126 10511	1	nF	50V only for NICAM
2304	5322 122 32268	470	pF	50V only for NICAM
2306	4822 124 41579	10	µF	50V only for NICAM

RESISTORS

3002	4822 051 20104	100	k	0,1W
3008	4822 051 20472	4,7	k	0,1W only for SECAM L
3009	4822 117 11449	2,2	k	0,1W only for SECAM L
3010	4822 051 20008	0	R	0,1W
3015	4822 117 11449	2,2	k	0,1W only for SECAM L
3018	4822 051 20682	6,8	k	0,1W
3020	4822 051 20332	3,3	k	0,1W
3023	4822 051 20101	100	R	0,1W
3028	4822 117 10833	10	k	0,1W only for SECAM L
3030	4822 051 20272	2,7	k	0,1W only for SECAM L
3033	4822 051 20272	2,7	k	0,1W
3035	4822 051 20272	2,7	k	0,1W
3040	4822 117 10833	10	k	0,1W
3045	4822 117 10833	10	k	0,1W
3047	4822 101 11034	22	k	only for SECAM L
3052	4822 051 20473	47	k	0,1W
3054	4822 051 20473	47	k	0,1W
3055	4822 051 20101	100	R	0,1W
3057	4822 051 20332	3,3	k	0,1W
3060	4822 051 20332	3,3	k	0,1W
3065	4822 051 20561	560	R	0,1W
3069	4822 051 20561	560	R	0,1W
3070	4822 051 20471	470	R	0,1W
3072	4822 051 20561	560	R	0,1W
3074	4822 051 20471	470	R	0,1W for SECAM BG/DK
3080	4822 051 20562	5,6	k	0,1W
3097	4822 051 20331	330	R	0,1W
3105	4822 051 20471	470	R	0,1W
3107	4822 051 20104	100	k	0,1W
3108	4822 051 20223	22	k	0,1W
3110	4822 051 20223	22	k	0,1W
3112	4822 117 11449	2,2	k	0,1W for SECAM BG/DK
3114	4822 051 20272	2,7	k	0,1W for SECAM BG/DK
3115	4822 051 20681	680	R	0,1W for SECAM BG/DK
3117	4822 051 20331	330	R	0,1W for SECAM BG/DK
3119	4822 051 20562	5,6	k	0,1W
3120	4822 051 20472	4,7	k	0,1W
3123	4822 051 20562	5,6	k	0,1W
3125	4822 051 20472	4,7	k	0,1W
3127	4822 051 20273	27	k	0,1W
3137	4822 051 20472	4,7	k	0,1W
3140	4822 051 20181	180	R	0,1W
3143	4822 051 20472	4,7	k	0,1W
3150	4822 051 20331	330	R	0,1W
3152	4822 117 11449	2,2	k	0,1W
3155	4822 051 20272	2,7	k	0,1W
3157	4822 051 20681	680	R	0,1W
3159	4822 100 12269	3,3	k	0,1W
3180	4822 051 20101	100	R	0,1W
3182	4822 051 20101	100	R	0,1W
3186	4822 051 20471	470	R	0,1W for SECAM BG/DK
3199	4822 117 10833	10	k	0,1W only for NICAM
3210	4822 051 20181	180	R	0,1W only for NICAM
3214	4822 051 20101	100	R	0,1W only for NICAM
3215	4822 051 10102	1	k	0,25W only for NICAM
3220	4822 117 11383	12	k	0,1W only for NICAM
3222	4822 051 20822	8,2	k	0,1W only for NICAM
3224	4822 051 20101	100	R	0,1W only for NICAM
3225	4822 051 20101	100	R	0,1W only for NICAM
3228	4822 051 20829	82	R	0,1W only for NICAM
3234	4822 051 20333	33	k	0,1W only for NICAM
3235	4822 051 20182	1,8	k	0,1W only for NICAM
3238	4822 051 20101	100	R	0,1W only for NICAM
3240	4822 051 20101	100	R	0,1W only for NICAM
3243	4822 051 20684	680	k	0,1W only for NICAM
3253	4822 051 20223	22	k	0,1W only for NICAM
3255	4822 051 20104	100	k	0,1W only for NICAM
3267	4822 051 20473	47	k	0,1W only for NICAM
3271	4822 051 20154	150	k	0,1W only for NICAM
3273	4822 051 20393	39	k	0,1W only for NICAM
3275	4822 117 10833	10	k	0,1W only for NICAM
3277	4822 117 10833	10	k	0,1W only for NICAM
3280	4822 051 20393	39	k	0,1W only for NICAM
3282	4822 051 20393	39	k	0,1W only for NICAM
3285	4822 051 20223	22	k	0,1W only for NICAM
3300	4822 051 20223	22	k	0,1W only for NICAM
3302	4822 117 10833	10	k	0,1W only for NICAM
3304	4822 117 10833	10	k	0,1W only for NICAM
3305	4822 051 20473	47	k	0,1W only for NICAM
3306	4822 051 20393	39	k	0,1W only for NICAM
3308	4822 051 20393	39	k	0,1W only for NICAM
3309	4822 051 20393	39	k	0,1W only for NICAM
3310	4822 051 20154	150	k	only for NICAM

COILS

5010	4822 157 10592	0,68µH 20% only for SECAM L
5010	4822 157 53529	1.2 µH only for SECAM BG/DK
5011	4822 157 10592	0,68µH 20% only for SECAM L
5092	4822 157 71245	15µH 10%
5097	4822 157 71686	12U 10%
5117	4822 157 71686	12U 10%
5130	4822 157 70677	1,8MUH
5150	4822 157 71686	12U 10%
5159	4822 157 71245	15µH 10%
5190	4822 157 71245	15µH 10% only for NICAM
5210	4822 157 71245	15µH 10% only for NICAM
5255	4822 157 63717	6,8MUH only for NICAM
5263	4822 157 71245	15µH 10% only for NICAM
5270	4822 157 71245	15µH 10% only for NICAM
5285	4822 157 71245	15µH 10% only for NICAM

DIODES

6008	4822 130 30621	1N4148 only for SECAM L
6015	4822 130 83538	BA582 only for SECAM L
6025	4822 130 83538	BA582 only for SECAM L
6036	4822 130 83538	BA582
6037	4822 130 83538	BA582
6069	4822 130 83538	BA582
6070	4822 130 83538	BA582
6243	4822 130 30621	1N4148 only for NICAM
6255	4822 130 10712	BB159 only for NICAM

TRANSISTORS & IC's

7000	5322 209 11306	HEF4094BT PHIN
7002	5322 130 41983	BC858B
7015	4822 130 63497	BCR135 only for SECAM L
7020	5322 130 42718	BFS20
7030	5322 130 41982	BC848B only for SECAM L
7040	5322 130 41982	BC848B
7045	5322 130 41982	BC848B
7047	4822 130 63497	BCR135 only for SECAM L
7050	4822 209 90431	TDA9813T/V2 for PAL/SEC BG/DK
7050	4822 209 90452	TDA9814T/V3 only for SECAM L
7052	5322 130 41982	BC848B
7054	5322 130 41982	BC848B
7055	5322 130 41982	BC848B
7100	4822 209 32501	TDA9840/V2
7115	5322 130 41983	BC858B only for SECAM L
7137	4822 130 63497	BCR135 only for SECAM L
7143	5322 130 41983	BC858B
7150	4822 209 60327	NJM2234M only for SECAM L
7155	5322 130 41983	BC858B
7165	4822 130 63497	BCR135 only for SECAM L
7196	5322 130 41983	BC858B only for SECAM BG/DK
7200	4822 209 12906	SAA7283GP/M2 only for NICAM
7225	5322 130 42718	BFS20 only for NICAM
7230	4822 130 63497	BCR135 only for NICAM
7275	4822 209 30419	BA4560F-E1 only for NICAM
7305	4822 209 30419	BA4560F-E1

Motherboard

MISCELLANEOUS

10	4822 256 10197	MOBO SENSOR-HOLDER DECK
11	4822 256 10197	MOBO SENSOR-HOLDER DECK
12	4822 256 10197	MOBO SENSOR-HOLDER DECK
15	4822 256 10196	TACHO HOLDER DECK
17	4822 256 10195	REEL TABLE TACHOH. DECK
20	4822 256 10198	DISTANCE HOLDER DECK
21	4822 256 10198	DISTANCE HOLDER DECK
1007	4822 242 82112	10180036 (12MHZ)
1010 ⚠	4822 071 51001	Fuse 100mA
1011 ⚠	4822 071 56301	Fuse 630mA
1012 ⚠	4822 071 58001	Fuse 800mA
1014 ⚠	4822 071 58001	Fuse 800mA
1015 ⚠	4822 071 58001	Fuse 800mA
1046	4822 242 81727	Resonator 10.0M for LANC/FSE
1050	4822 242 80276	KD0292FRC (10MHZ)
1060	4822 242 81513	4,433 600 MC only for VHS
1080	4822 157 70664	IND VAR 10MHZ7 for SECAM L
1082	4822 157 70963	COIL 7X7 for SECAM L
1085	4822 157 70656	COIL for SECAM L
1104	4822 157 70963	COIL 7X7 only for OSD
1108	4822 242 72965	17,734476 MHz only for OSD
1125	4822 157 70667	FIL LC VAR 7MHZ for Modulator
1700	4822 277 11521	SWITCH 1 ASSY
1701	4822 277 11521	SWITCH 1 ASSY
1702	4822 277 11629	SWITCH 3 ASSY for S-VHS
1750	4822 210 10706	TUMOD TP926L for SECAM L
1750	4822 210 10702	TUMOD TP916L for PAL BG
1750	4822 210 10722	TUNER+RF MOD/B, for PAL I

CONNECTORS

1501	4822 267 41062	6 pin
1502	4822 267 10366	CAPSTAN-MOBO-SOCKET JST
1506	4822 267 10364	CONN. 9P not for flying erase head
1506	4822 267 10506	12P only for flying erase head
1510	4822 267 10457	CONN. 19P
1528	4822 267 10462	CONN. 7P only for VPT
1529	4822 267 10503	6P FEM. for LANC/FSE
1530	4822 267 10504	18P FEM. only for S-VHS
1531	4822 267 10504	18P FEM. only for S-VHS
1538	4822 267 51252	7 P
1901	4822 267 10505	4P only for S-VHS

CAPACITORS

2008	4822 124 40433	47	µF	25V	only for S-VHS
2010	4822 124 80231	47	µF	16V	
2012	4822 122 33342	33	nF	63V	
2015	5322 126 10223	4,7	nF	63V	
2016	4822 122 33342	33	nF	63V	only for S-VHS
2017	4822 122 33177	10	nF	50V	
2018	4822 126 13057	220	nF	25V	
2019	4822 124 80238	200	mF	5,5V	
2020	4822 122 33342	33	nF	63V	
2023	5322 122 32452	47	pF	63V	
2024	5322 122 32452	47	pF	63V	
2027	4822 122 33342	33	nF	63V	
2028	4822 122 33342	33	nF	63V	
2029	4822 122 33342	33	nF	63V	
2030	4822 126 13176	100	nF	25V	
2035	4822 122 33575	220	pF	50V	
2037	4822 122 33575	220	pF	50V	
2040	4822 126 13176	100	nF	25V	only for RS232
2041	4822 126 13176	100	nF	25V	only for RS232
2042	4822 126 13176	100	nF	25V	only for RS232
2043	4822 126 13176	100	nF	25V	only for RS232
2044	4822 122 33342	33	nF	63V	only for RS232
2045	4822 122 33177	10	nF	50V	only for LANC/FSE
2046	4822 122 33177	10	nF	50V	only for LANC/FSE
2047	4822 122 33177	10	nF	50V	for LANC/FSE/MEI
2050	5322 122 32654	22	nF	63V	
2055	4822 124 81029	100	µF	25V	
2061	5322 126 10223	4,7	nF	63V	
2062	5322 126 10223	4,7	nF	63V	
2063	5322 126 10223	4,7	nF	63V	
2065	4822 124 40433	47	µF	25V	
2066	5322 126 10223	4,7	nF	63V	
2071	5322 126 10223	4,7	nF	63V	
2074	4822 124 41584	100	µF	10V	
2075	4822 124 80229	22	µF	16V	
2077	5322 126 10511	1	nF	50V	
2079	4822 126 13176	100	nF	25V	
2081	5322 122 32654	22	nF	63V	
2082	4822 122 33175	2,2	nF	50V	only for OSD
2083	4822 122 33342	33	nF	63V	
2084	4822 124 40756	1	µF	100V	only for OSD
2085	4822 122 33342	33	nF	63V	
2086	5322 122 32531	100	pF	50V	only for OSD
2087	4822 126 13176	100	nF	25V	
2088	4822 122 33342	33	nF	63V	
2089	4822 124 41584	100	µF	10V	only for OSD
2091	4822 122 33342	33	nF	63V	
2092	4822 124 40756	1	µF	100V	
2093	4822 122 33177	10	nF	50V	
2094	4822 126 13176	100	nF	25V	
2095	4822 122 33177	10	nF	50V	
2097	4822 122 33342	33	nF	63V	
2099	4822 124 81029	100	µF	25V	
2101	5322 122 32452	47	pF	63V	
2103	5322 122 32658	22	pF	50V	
2106	4822 126 13176	100	nF	25V	
2108	4822 124 40756	1	µF	100V	
2109	4822 126 12768	47	nF		
2110	5322 122 32654	22	nF	63V	
2112	4822 122 33177	10	nF	50V	
2116	5322 122 32654	22	nF	63V	
2117	4822 122 33177	10	nF	50V	
2119	5322 122 32531	100	pF	50V	
2121	4822 122 33342	33	nF	63V	
2125	5322 122 32658	22	pF	50V	
2127	5322 122 32658	22	pF	50V	
2128	5322 126 10223	4,7	nF	63V	
2129	5322 126 10465	3,9	nF	63V	
2130	4822 124 40763	2,2	µF	100V	
2131	4822 122 33177	10	nF	50V	
2135	4822 124 80854	1	µF	50V	
2138	4822 124 80854	1	µF	50V	
2141	4822 124 80854	1	µF	50V	
2144	5322 122 32654	22	nF	63V	
2145	4822 122 33177	10	nF	50V	
2150	5322 122 32966	39	pF	50V	
2150	5322 122 32452	47	pF	63V	for S-VHS/SQPB
2155	5322 126 10511	1	nF	50V	only for S-VHS
2156	5322 126 10511	1	nF	50V	only for S-VHS
2157	5322 122 32661	56	pF	50V	only for S-VHS
2157	4822 122 33514	68	pF	50V	
2158	5322 126 10511	1	nF	50V	only for VHS
2159	4822 126 13689	18	pF	63V	only for VHS
2163	4822 122 33177	10	nF	50V	only for VHS
2165	5322 122 32287	4,7	pF	50V	only for VHS
2167	5322 122 32452	47	pF	63V	
2169	4822 122 33342	33	nF	63V	
2170	4822 126 10326	180	pF	63V	
2175	5322 126 10184	680	pF		
2176	4822 126 10326	180	pF	63V	
2178	4822 122 33342	33	nF	63V	
2179	5322 122 32269	6,8	pF	50V	
2181	5322 122 32481	15	pF	50V	
2182	4822 122 33177	10	nF	50V	only for VHS&PAL
2183	4822 122 33177	10	nF	50V	for VHS&SECAM L
2185	5322 116 80853	560	pF	63V	only for SECAM L
2187	4822 122 33177	10	nF	50V	only for VHS
2188	5322 126 10223	4,7	nF	63V	
2189	5322 126 10223	4,7	nF	63V	
2197	4822 122 33177	10	nF	50V	for S-VHS/SQPB
2203	5322 122 32658	22	pF	50V	for S-VHS/SQPB
2205	4822 126 13176	100	nF	25V	
2207	4822 122 33177	10	nF	50V	
2215	5322 122 32966	39	pF	50V	for S-VHS/SQPB
2215	5322 122 32531	100	pF	50V	
2221	5322 126 10511	1	nF	50V	only for VHS
2233	4822 124 40756	1	µF	100V	only for TXT&VHS
2235	4822 126 13176	100	nF	25V	only for VHS
2236	4822 126 13176	100	nF	25V	
2237	4822 124 80874	47	µF	50V	only for VHS
2240	5322 122 32654	22	nF	63V	only for VHS
2243	4822 122 33177	10	nF	50V	for VHS&SECAM L

⚠ ... Safety component, use only this type

Motherboard

2245	4822 122 33177	10	nF	50V	only for VHS&PAL
2250	4822 126 12768	47	nF		only for VHS
2253	5322 122 32654	22	nF	63V	only for VHS
2255	4822 124 40756	1	µF	100V	only for VHS
2257	4822 124 40756	1	µF	100V	only for VHS
2260	4822 122 33177	10	nF	50V	only for VHS
2263	4822 126 12768	47	nF		only for VHS
2264	4822 126 13805	68	nF	16V	only for VHS
2265	4822 124 41579	10	µF	50V	only for VHS
2267	5322 122 33538	150	pF	63V	only for VHS
2268	4822 122 33515	82	pF	63V	only for VHS
2269	4822 122 33172	390	pF	50V	only for VHS
2271	5322 122 32481	15	pF	50V	only for VHS
2273	5322 122 32481	15	pF	50V	only for VHS
2275	5322 126 10511	1	nF	50V	only for VHS
2279	4822 124 40756	1	µF	100V	only for SQPB
2282	5322 122 31946	27	pF	63V	only for SQPB
2285	4822 122 33177	10	nF	50V	only for SQPB
2287	4822 122 33177	10	nF	50V	only for SQPB
2292	4822 122 33575	220	pF	50V	only for VHS
2293	5322 122 32659	33	pF	50V	only for SQPB
2295	4822 126 10326	180	pF	63V	
2300	4822 124 40756	1	µF	100V	only for VHS
2316	4822 122 33177	10	nF	50V	only for VHS
2318	4822 126 13222	390	pF	63V	only for VHS
2322	5322 122 32654	22	nF	63V	only for VHS
2324	4822 124 41579	10	µF	50V	only for VHS
2327	5322 122 32654	22	nF	63V	only for VHS
2330	4822 124 41579	10	µF	50V	only for VHS
2331	4822 124 80874	47	µF	50V	only for VHS
2332	4822 122 33177	10	nF	50V	only for VHS
2333	5322 122 32654	22	nF	63V	only for VHS
2334	4822 124 40756	1	µF	100V	only for VHS
2336	4822 124 41579	10	µF	50V	only for VHS
2337	4822 124 41579	10	µF	50V	only for VHS
2338	5322 122 32481	15	pF	50V	only for VHS
2339	4822 122 33342	33	nF	63V	only for VHS
2340	4822 122 33177	10	nF	50V	only for VHS
2341	4822 122 33177	10	nF	50V	only for VHS
2342	4822 124 41579	10	µF	50V	only for VHS
2343	4822 122 33177	10	nF	50V	only for VHS
2344	4822 122 33177	10	nF	50V	only for VHS
2345	5322 122 32654	22	nF	63V	only for VHS
2346	4822 122 33177	10	nF	50V	only for VHS
2347	5322 122 32966	39	pF	50V	only for VHS
2348	4822 124 40756	1	µF	100V	only for VHS
2349	4822 122 33177	10	nF	50V	only for VHS
2350	4822 126 13176	100	nF	25V	only for VHS
2353	4822 122 33177	10	nF	50V	only for VHS
2360	4822 124 80875	220	µF	25V	
2370	4822 122 33342	33	nF	63V	only for VHS
2380	4822 122 33342	33	nF	63V	
2395	4822 124 23053	1	µF	63V	only for VHS
2422	4822 122 33514	68	pF	50V	only for VHS
2501	4822 124 41579	10	µF	50V	only for VHS
2550	5322 126 10511	1	nF	50V	only for SECAM L
2551	5322 122 32452	47	pF	63V	only for SECAM L
2554	4822 122 33177	10	nF	50V	only for SECAM L
2555	5322 122 33538	150	pF	63V	only for SECAM L
2556	5322 126 10511	1	nF	50V	only for SECAM L
2557	4822 126 13176	100	nF	25V	only for SECAM L
2558	4822 122 33177	10	nF	50V	only for SECAM L
2559	4822 126 13176	100	nF	25V	only for SECAM L
2560	4822 122 33177	10	nF	50V	only for SECAM L
2561	5322 122 32268	470	pF	50V	only for SECAM L
2562	4822 122 33514	68	pF	50V	only for SECAM L
2563	5322 122 33538	150	pF	63V	only for SECAM L
2564	5322 122 32658	22	pF	50V	only for SECAM L
2567	4822 122 33514	68	pF	50V	only for SECAM L
2569	4822 122 33177	10	nF	50V	only for SECAM L
2570	4822 124 41584	100	µF	10V	for SECAM
2575	5322 122 32268	470	pF	50V	only for SECAM L
2576	5322 122 31946	27	pF	63V	only for SECAM L
2577	4822 122 32139	12	pF	63V	only for SECAM L
2578	5322 122 31946	27	pF	63V	only for SECAM L
2579	5322 122 32531	100	pF	50V	only for SECAM L
2580	4822 122 33575	220	pF	50V	only for SECAM L
2581	5322 122 32531	100	pF	50V	only for SECAM L
2583	4822 122 33342	33	nF	63V	only for SECAM L
2584	4822 124 41584	100	µF	10V	only for SECAM L
2585	5322 122 32531	100	pF	50V	only for SECAM L

2586	5322 122 33861	120	pF	50V	only for SECAM L
2587	4822 122 33177	10	nF	50V	only for SECAM L
2589	5322 122 31946	27	pF	63V	only for SECAM L
2590	4822 122 33515	82	pF	63V	only for SECAM L
2591	5322 122 31946	27	pF	63V	only for SECAM L
2592	5322 126 10511	1	nF	50V	for SECAM L&VHS
2593	5322 126 10511	1	nF	50V	only for SECAM L
2594	4822 122 33515	82	pF	63V	only for SECAM L
2595	5322 126 10511	1	nF	50V	only for SECAM L
2596	4822 122 33177	10	nF	50V	for MESECAM det.
2597	5322 126 10511	1	nF	50V	for MESECAM det.
2598	4822 122 33342	33	nF	63V	for MESECAM det.
2600	4822 124 40763	2,2	µF	100V	
2601	4822 122 33177	10	nF	50V	
2602	4822 122 33177	10	nF	50V	
2603	4822 122 33177	10	nF	50V	
2605	4822 122 33177	10	nF	50V	
2606	4822 122 33177	10	nF	50V	
2607	4822 122 33177	10	nF	50V	
2609	4822 122 33177	10	nF	50V	
2610	4822 122 33177	10	nF	50V	
2612	5322 122 32654	22	nF	63V	
2613	4822 122 33177	10	nF	50V	
2614	4822 122 33177	10	nF	50V	
2615	5322 122 31946	27	pF	63V	only for VHS
2615	5322 122 32448	10	pF	50V	only for S-VHS
2616	5322 122 31946	27	pF	63V	only for VHS
2616	5322 122 33244	8,2	pF	50V	only for S-VHS
2618	4822 122 33177	10	nF	50V	
2620	4822 122 33177	10	nF	50V	
2621	4822 126 13176	100	nF	25V	
2622	4822 126 13176	100	nF	25V	
2623	5322 126 10511	1	nF	50V	
2625	4822 124 80875	220	µF	25V	
2626	4822 126 13176	100	nF	25V	
2627	4822 122 33177	10	nF	50V	
2630	4822 122 33514	68	pF	50V	for flying erase head
2634	4822 122 33575	220	pF	50V	
2635	5322 122 32661	56	pF	50V	for flying erase head
2636	4822 124 80874	47	µF	50V	for flying erase head
2637	4822 126 13176	100	nF	25V	for flying erase head
2638	4822 122 33177	10	nF	50V	
2639	5322 122 32661	56	pF	50V	for flying erase head
2640	4822 122 33575	220	pF	50V	
2641	4822 126 13176	100	nF	25V	
2642	4822 122 33177	10	nF	50V	
2643	4822 122 33177	10	nF	50V	
2644	4822 122 33177	10	nF	50V	
2645	4822 122 33177	10	nF	50V	
2646	4822 122 33342	33	nF	63V	
2647	4822 124 80874	47	µF	50V	
2648	5322 122 31865	1,5	nF	63V	
2649	5322 122 32658	22	pF	50V	
2652	4822 124 41584	100	µF	10V	only for OSD
2653	4822 122 33342	33	nF	63V	only for OSD
2658	4822 126 13176	100	nF	25V	only for OSD
2659	4822 126 13176	100	nF	25V	only for OSD
2660	4822 122 33342	33	nF	63V	only for OSD
2669	5322 122 33861	120	pF	50V	only for OSD
2691	4822 124 40756	1	µF	100V	only for OSD
2692	5322 122 32481	15	pF	50V	only for OSD
2694	4822 126 13689	18	pF	63V	only for OSD
2695	4822 125 50355	18		63V	only for OSD
2697	4822 126 13689	18	pF	63V	only for OSD
2698	5322 122 32659	33	pF	50V	only for OSD
2705	4822 126 13176	100	nF	25V	for VPS/PDC no TXT
2715	4822 122 33175	2,2	nF	50V	for VPS/PDC no TXT
2735	4822 122 33342	33	nF	63V	for VPS/PDC no TXT
2747	4822 124 40756	1	µF	100V	for VPS/PDC no TXT
2749	5322 122 33538	150	pF	63V	for VPS/PDC no TXT
2775	4822 122 33177	10	nF	50V	
2776	5322 126 10511	1	nF	50V	for Modulator
2777	4822 124 41579	10	µF	50V	for Modulator
2780	5322 124 41431	22	µF	35V	
2785	4822 122 33177	10	nF	50V	
2790	4822 124 41579	10	µF	50V	
2795	4822 122 33177	10	nF	50V	
2800	4822 124 40433	47	µF	25V	
2820	4822 124 41579	10	µF	50V	for Modulator
2825	4822 122 33342	33	nF	63V	
2830	5322 124 41431	22	µF	35V	

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2832	5322 122 32268	470	pF	50V	
2835	4822 124 40433	47	µF	25V	for Modulator
2840	4822 124 40433	47	µF	25V	
2842	4822 122 33177	10	nF	50V	
2844	4822 122 32646	5,6	nF	50V	
2845	4822 122 33177	10	nF	50V	
2870	4822 124 40763	2,2	µF		
2900	4822 122 33177	10	nF	50V	only for S-VHS
2902	4822 124 40433	47	µF	25V	only for S-VHS
2907	4822 122 33342	33	nF	63V	only for S-VHS
2910	4822 122 33177	10	nF	50V	only for S-VHS
2911	4822 126 13176	100	nF	25V	

RESISTORS

3008	4822 051 20101	100	R	0,1W	only for TXT
3009	4822 051 20101	100	R	0,1W	only for TXT
3012	4822 051 10102	1	k	0,25W	
3013	4822 051 20472	4,7	k	0,1W	
3014 ⚠	4822 116 40245	1,2	R		
3015	4822 051 20008	0	R	0,1W	only for VHS
3016	4822 051 10102	1	k	0,25W	only for S-VHS
3017	4822 051 20224	220	k	0,1W	only for S-VHS
3022	4822 051 20472	4,7	k	0,1W	
3023	4822 051 20223	22	k	0,1W	
3024	4822 117 11449	2,2	k	0,1W	
3027	4822 051 20332	3,3	k	0,1W	only for S-VHS
3030	4822 051 20473	47	k	0,1W	for LANC/FSE/MEI
3031	4822 051 20223	22	k	0,1W	for LANC/FSE/MEI
3034	4822 051 10102	1	k	0,25W	only for S-VHS
3035	4822 117 10833	10	k	0,1W	only for LANC/FSE
3036	4822 117 10833	10	k	0,1W	only for LANC/FSE
3037	4822 051 20008	0	R	0,1W	only for VHS
3040	4822 117 10833	10	k	0,1W	for LANC/FSE/MEI
3042	4822 051 20473	47	k	0,1W	only for S-VHS
3044	4822 051 20473	47	k	0,1W	for LANC/FSE/MEI
3045	4822 051 20682	6,8	k	0,1W	
3046	4822 051 20223	22	k	0,1W	for LANC/FSE/MEI
3048	4822 051 20221	220	R	0,1W	
3049	4822 051 20473	47	k	0,1W	only for LANC/FSE
3050	4822 051 20221	220	R	0,1W	
3051	4822 117 11449	2,2	k	0,1W	
3054	4822 051 20221	220	R	0,1W	
3055	4822 051 20471	470	R	0,1W	
3057	4822 051 20221	220	R	0,1W	
3064	4822 051 20473	47	k	0,1W	
3070	4822 051 20472	4,7	k	0,1W	
3072	4822 051 20473	47	k	0,1W	
3073	4822 051 20474	470	k	0,1W	
3075	4822 051 20101	100	R	0,1W	
3077	4822 051 20101	100	R	0,1W	
3078	4822 051 20272	2,7	k	0,1W	
3079	4822 051 20272	2,7	k	0,1W	
3082	4822 051 20008	0	R	0,1W	only for RS232
3084	4822 051 20101	100	R	0,1W	
3085	4822 051 20101	100	R	0,1W	
3086	4822 051 20101	100	R	0,1W	
3088	4822 051 20472	4,7	k	0,1W	
3089	4822 051 20472	4,7	k	0,1W	
3090	4822 051 20008	0	R	0,1W	only for TXT
3091	4822 051 20008	0	R	0,1W	
3092	4822 051 20008	0	R	0,1W	not for TXT
3096	4822 051 20008	0	R	0,1W	only for TXT
3098	4822 051 20008	0	R	0,1W	not for TXT
3102	4822 051 20471	470	R	0,1W	
3109	4822 051 20008	0	R	0,1W	
3111	4822 051 20008	0	R	0,1W	
3113	4822 051 20472	4,7	k	0,1W	
3114	4822 051 20472	4,7	k	0,1W	
3115	4822 051 20472	4,7	k	0,1W	
3117	4822 051 20472	4,7	k	0,1W	only for LANC/FSE
3118	4822 051 20472	4,7	k	0,1W	for LANC/FSE/MEI
3119	4822 051 20472	4,7	k	0,1W	only for LANC/FSE
3120	4822 051 20472	4,7	k	0,1W	for LANC/FSE/MEI
3125	4822 051 20472	4,7	k	0,1W	for LANC/FSE/MEI
3121	4822 051 20008	0	R	0,1W	for LANC/FSE/MEI
3122	4822 051 20008	0	R	0,1W	for LANC/FSE/MEI
3127	4822 051 20472	4,7	k	0,1W	
3128	4822 051 20473	47	k	0,1W	
3130	4822 051 20225	2,2	M	0,1W	
3131	4822 051 20008	0	R	0,1W	only for VHS
3132	4822 051 20104	100	k	0,1W	
3133	4822 051 20334	330	k	0,1W	
3134	4822 051 20221	220	R	0,1W	for LANC/FSE/MEI
3135	4822 051 20273	27	k	0,1W	
3136	4822 051 20101	100	R	0,1W	for LANC/FSE/MEI
3137	4822 051 20221	220	R	0,1W	
3138	4822 051 20008	0	R	0,1W	only for LANC/FSE
3139	4822 051 20104	100	k	0,1W	
3142	4822 051 20563	56	k	0,1W	only for LANC/FSE
3143	4822 117 10353	150	R	0,1W	only for LANC/FSE
3144	4822 051 20183	18	k	0,1W	only for LANC/FSE
3145	4822 051 20101	100	R	0,1W	only for LANC/FSE
3146	4822 051 20563	56	k	0,1W	only for LANC/FSE
3147	4822 051 20472	4,7	k	0,1W	only for LANC/FSE
3150	4822 051 20391	390	R	0,1W	
3151	4822 051 20273	27	k	0,1W	
3153	4822 051 10102	1	k	0,25W	
3154	4822 051 20391	390	R	0,1W	
3155	4822 051 20473	47	k	0,1W	
3157	4822 051 20391	390	R	0,1W	
3158	4822 051 20109	10	R	0,1W	
3160	4822 051 20008	0	R	0,1W	
3163	4822 051 10102	1	k	0,25W	
3164	4822 051 10102	1	k	0,25W	
3165	4822 051 20273	27	k	0,1W	
3167	4822 051 20562	5,6	k	0,1W	
3169	4822 051 20008	0	R	0,1W	
3170	4822 051 20563	56	k	0,1W	
3177	4822 051 20223	22	k	0,1W	
3179	4822 051 20273	27	k	0,1W	
3181	4822 051 20104	100	k	0,1W	
3183	4822 051 20221	220	R	0,1W	
3184	4822 051 20683	68	k	0,1W	
3185	4822 051 20473	47	k	0,1W	
3186	4822 051 20683	68	k	0,1W	
3187	4822 051 20473	47	k	0,1W	
3188	4822 051 20473	47	k	0,1W	
3190	4822 051 20159	15	R	0,1W	
3191	4822 051 20159	15	R	0,1W	
3192	4822 051 20159	15	R	0,1W	
3193	4822 051 20159	15	R	0,1W	
3194	4822 051 20101	100	R	0,1W	
3195	4822 117 11139	1,5	k	0,1W	
3196	4822 051 20473	47	k	0,1W	
3197	4822 051 20159	15	R	0,1W	
3198	4822 051 20101	100	R	0,1W	
3199	4822 051 10102	1	k	0,25W	
3200	4822 051 20472	4,7	k	0,1W	
3201	4822 051 20393	39	k	0,1W	
3203	4822 117 10833	10	k	0,1W	
3205	4822 051 20223	22	k	0,1W	
3206	4822 051 10102	1	k	0,25W	
3211	4822 117 10833	10	k	0,1W	
3213	4822 117 11449	2,2	k	0,1W	
3214	4822 051 20223	22	k	0,1W	
3219	4822 051 20008	0	R	0,1W	
3221	4822 051 20008	0	R	0,1W	
3222	4822 051 20472	4,7	k	0,1W	
3223	4822 051 20221	220	R	0,1W	
3225	4822 051 20221	220	R	0,1W	
3227	4822 051 20393	39	k	0,1W	
3229	4822 051 20684	680	k	0,1W	
3230	4822 117 10833	10	k	0,1W	
3231	4822 051 20223	22	k	0,1W	
3233	4822 051 20104	100	k	0,1W	
3235	4822 051 20684	680	k	0,1W	
3236	4822 051 20472	4,7	k	0,1W	
3238	4822 051 20684	680	k	0,1W	
3240	4822 051 20684	680	k	0,1W	
3241	4822 051 20473	47	k	0,1W	
3242	4822 051 20101	100	R	0,1W	
3243	4822 051 20472	4,7	k	0,1W	
3244	4822 051 20472	4,7	k	0,1W	
3246	4822 051 20473	47	k	0,1W	
3250	4822 051 20223	22	k	0,1W	
3251	4822 117 11449	2,2	k	0,1W	
3253	4822 117 10833	10	k	0,1W	
3254	4822 051 20223	22	k	0,1W	
3255	4822 117 11149	82	k	0,1W	
3257	4822 051 20158	1,5	R	0,1W	

⚠ ... Safety component, use only this type

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3260	4822 117 10833	10	k	0,1W	
3261	4822 117 10833	10	k	0,1W	
3262	4822 051 20008	0	R	0,1W	not for OSD
3265	4822 117 10833	10	k	0,1W	
3266	4822 051 20392	3,9	k	0,1W	
3268	4822 051 20223	22	k	0,1W	
3270	4822 051 20182	1,8	k	0,1W	
3271	4822 051 20101	100	R	0,1W	
3272	4822 051 20104	100	k	0,1W	
3274	4822 117 10833	10	k	0,1W	
3275	4822 051 20223	22	k	0,1W	
3276	4822 051 20221	220	R	0,1W	
3278	4822 051 20472	4,7	k	0,1W	
3279	4822 051 20562	5,6	k	0,1W	
3281	4822 051 20822	8,2	k	0,1W	
3282	4822 117 10833	10	k	0,1W	only for OSD
3283	4822 051 20474	470	k	0,1W	only for OSD
3284	4822 117 11391	130	k		only for OSD
3285	4822 051 20822	8,2	k	0,1W	
3286	4822 117 10833	10	k	0,1W	
3287	4822 051 20471	470	R	0,1W	
3288	4822 051 20229	22	R	0,1W	
3289	4822 051 20229	22	R	0,1W	
3290	4822 051 20682	6,8	k	0,1W	
3291	4822 051 10102	1	k	0,25W	
3292	4822 051 20472	4,7	k	0,1W	
3293	4822 051 20472	4,7	k	0,1W	
3294	4822 051 20472	4,7	k	0,1W	
3295	4822 051 10102	1	k	0,25W	
3296	4822 051 20472	4,7	k	0,1W	
3297	4822 051 20474	470	k	0,1W	
3300	4822 051 20182	1,8	k	0,1W	
3301	4822 051 20223	22	k	0,1W	
3305	4822 051 10102	1	k	0,25W	
3306	4822 051 20472	4,7	k	0,1W	
3307	4822 051 20472	4,7	k	0,1W	
3310	4822 051 20473	47	k	0,1W	
3312	4822 117 10833	10	k	0,1W	
3313	4822 051 20229	22	R	0,1W	
3314	4822 051 20473	47	k	0,1W	
3316	4822 051 20684	680	k	0,1W	
3317	4822 051 20101	100	R	0,1W	
3318	4822 117 10833	10	k	0,1W	
3319	4822 051 20101	100	R	0,1W	
3320	4822 117 10833	10	k	0,1W	
3321	4822 051 20101	100	R	0,1W	
3322	4822 051 20008	0	R	0,1W	only for OSD/VPT
3323	4822 051 20271	270	R	0,1W	
3325	4822 051 20471	470	R	0,1W	
3326	4822 051 20473	47	k	0,1W	only for OSD/VPT
3327	4822 051 20473	47	k	0,1W	only for OSD/VPT
3329	4822 051 20473	47	k	0,1W	only for OSD/VPT
3330	4822 051 20472	4,7	k	0,1W	only for OSD/VPT
3331	4822 117 10833	10	k	0,1W	only for OSD/VPT
3333	4822 051 20273	27	k	0,1W	only for OSD/VPT
3334	4822 051 20472	4,7	k	0,1W	only for OSD/VPT
3350	4822 051 10102	1	k	0,25W	
3353	4822 051 20101	100	R	0,1W	
3355	4822 051 20122	1,2	k	0,1W	only for S-VHS
3357	4822 051 20182	1,8	k	0,1W	only for S-VHS
3358	4822 051 20182	1,8	k	0,1W	only for VHS
3360	4822 051 20681	680	R	0,1W	only for VHS
3363	4822 051 20331	330	R	0,1W	only for VHS
3364	4822 051 20681	680	R	0,1W	
3364	4822 051 20471	470	R	0,1W	
3365	4822 051 20221	220	R	0,1W	
3367	4822 051 20221	220	R	0,1W	
3369	4822 051 20561	560	R	0,1W	
3370	4822 051 10102	1	k	0,25W	
3373	4822 051 20101	100	R	0,1W	
3373	4822 117 10353	150	R	0,1W	
3378	4822 051 20182	1,8	k	0,1W	
3379	4822 117 11449	2,2	k	0,1W	
3381	4822 051 20681	680	R	0,1W	only for PAL
3382	4822 051 20681	680	R	0,1W	for S-VHS&SEC. L
3383	4822 051 20008	0	R	0,1W	for S-VHS&PAL
3384	4822 117 10833	10	k	0,1W	only for SECAM L
3385	4822 051 20681	680	R	0,1W	only for SECAM L
3387	4822 100 11417	2,2	k	0,3W	only for VHS
3390	4822 051 20271	270	R	0,1W	
3393	4822 051 20561	560	R	0,1W	
3394	4822 051 20104	100	k	0,1W	for S-VHS/SQPB
3397	4822 051 20221	220	R	0,1W	for S-VHS/SQPB
3397	4822 051 20391	390	R	0,1W	for S-VHS/SQPB
3399	4822 051 20223	22	k	0,1W	for S-VHS/SQPB
3403	4822 051 20221	220	R	0,1W	for S-VHS/SQPB
3404	4822 051 20221	220	R	0,1W	for S-VHS/SQPB
3405	4822 051 20561	560	R	0,1W	only for SQPB
3405	4822 051 20471	470	R	0,1W	only for S-VHS
3407	4822 051 20223	22	k	0,1W	
3410	4822 117 11449	2,2	k	0,1W	for S-VHS/SQPB
3413	4822 051 20221	220	R	0,1W	for S-VHS/SQPB
3415	4822 051 20221	220	R	0,1W	for S-VHS/SQPB
3417	4822 051 20471	470	R	0,1W	for SQPB
3417	4822 051 20391	390	R	0,1W	for S-VHS
3418	4822 051 20101	100	R	0,1W	for SQPB
3418	4822 117 10353	150	R		for S-VHS
3421	4822 051 10102	1	k	0,25W	only for VHS
3425	4822 051 20473	47	k	0,1W	only for VHS
3427	4822 051 20473	47	k	0,1W	only for VHS
3430	4822 051 10102	1	k	0,25W	only for TXT&VHS
3432	4822 051 20153	15	k	0,1W	only for TXT&VHS
3433	4822 051 20822	8,2	k	0,1W	only for TXT&VHS
3434	4822 051 20101	100	R	0,1W	only for TXT
3435	4822 117 11449	2,2	k	0,1W	only for VHS
3437	4822 051 10102	1	k	0,25W	only for VHS
3440	4822 051 20101	100	R	0,1W	for VHS&SECAM L
3455	4822 051 10102	1	k	0,25W	only for VHS
3460	4822 051 10102	1	k	0,25W	only for VHS
3475	4822 051 20561	560	R	0,1W	only for VHS
3479	4822 101 11065	4,7	k		only for VHS
3480	4822 051 20104	100	k	0,1W	only for SQPB
3482	4822 117 10833	10	k	0,1W	only for SQPB
3485	4822 051 20223	22	k	0,1W	only for SQPB
3487	4822 051 20272	2,7	k	0,1W	only for SQPB
3489	4822 051 10102	1	k	0,25W	only for SQPB
3490	4822 051 20471	470	R	0,1W	only for OSD
3491	4822 051 20681	680	R	0,1W	only for OSD
3492	4822 051 20122	1,2	k	0,1W	only for VHS
3493	4822 051 20122	1,2	k	0,1W	only for OSD
3494	4822 051 20681	680	R	0,1W	only for OSD
3495	4822 117 10759	4,7	k		only for VHS
3499	4822 051 20273	27	k	0,1W	only for OSD
3500	4822 117 11449	2,2	k	0,1W	only for VHS
3501	4822 051 20473	47	k	0,1W	only for OSD
3502	4822 051 20683	68	k	0,1W	only for SQPB
3503	4822 101 11035	100	k		only for SQPB
3504	4822 051 20683	68	k	0,1W	only for SQPB
3507	4822 051 20104	100	k	0,1W	only for SQPB
3508	4822 101 11035	100	k		only for SQPB
3509	4822 051 10102	1	k	0,25W	only for SQPB
3510	4822 051 20272	2,7	k	0,1W	only for VHS
3511	4822 051 20561	560	R	0,1W	only for S-VHS
3512	4822 117 12591	27	k	2%	only for VHS
3513	4822 117 12324	5,6	k	0,1W	only for VHS
3514	4822 051 20272	2,7	k	0,1W	only for VHS
3518	4822 117 10361	680	R	0,1W	only for VHS
3522	4822 117 10833	10	k	0,1W	only for VHS
3523	4822 117 10833	10	k	0,1W	only for VHS
3525	4822 051 20153	15	k	0,1W	
3530	4822 051 10102	1	k	0,25W	only for VHS
3531	4822 051 10102	1	k	0,25W	only for OSD/VPT
3532	4822 051 20473	47	k	0,1W	only for VHS
3533	4822 051 20473	47	k	0,1W	only for VHS
3534	4822 051 20008	0	R	0,1W	only for TXT&VHS
3535	4822 051 10102	1	k	0,25W	only for VHS
3536	4822 051 20183	18	k	0,1W	only for VHS
3537	4822 051 20223	22	k	0,1W	only for VHS
3539	4822 051 10102	1	k	0,25W	only for VHS
3540	4822 117 11149	82	k	0,1W	only for VHS
3542	4822 051 20154	150	k	0,1W	only for VHS
3543	4822 117 11149	82	k	0,1W	only for VHS
3544	4822 051 20683	68	k	0,1W	only for VHS
3545	4822 051 20563	56	k	0,1W	only for VHS
3546	4822 051 20822	8,2	k	0,1W	only for VHS
3547	4822 117 10833	10	k	0,1W	only for VHS
3548	4822 051 20224	220	k	0,1W	
3549	4822 051 20224	220	k	0,1W	only for VHS
3550	4822 117 11449	2,2	k	0,1W	only for SECAM L
3552	4822 117 11449	2,2	k	0,1W	only for SECAM L
3553	4822 051 10102	1	k	0,25W	only for SECAM L
3555	4822 051 10102	1	k	0,25W	only for SECAM L

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3557	4822 051 20474	470	k	0,1W only for SECAM L
3559	4822 117 11449	2,2	k	0,1W only for SECAM L
3560	4822 051 20223	22	k	0,1W only for SECAM L
3561	4822 117 10833	10	k	0,1W only for SECAM L
3565	4822 051 10102	1	k	0,25W only for SECAM L
3567	4822 051 20109	10	R	0,1W only for SECAM L
3569	4822 051 10102	1	k	0,25W only for SECAM L
3570	4822 051 20392	3,9	k	0,1W only for SECAM L
3572	4822 051 20479	47	R	0,1W only for SECAM L
3573	4822 051 10102	1	k	0,25W only for SECAM L
3575	4822 051 20682	6,8	k	0,1W only for SECAM L
3576	4822 051 10102	1	k	0,25W only for SECAM L
3577	4822 117 11449	2,2	k	0,1W only for SECAM L
3578	4822 051 20822	8,2	k	0,1W only for SECAM L
3579	4822 051 10102	1	k	0,25W only for SECAM L
3580	4822 051 20392	3,9	k	0,1W only for SECAM L
3581	4822 100 11417	2,2	k	0,3W only for SECAM L
3583	4822 051 10102	1	k	0,25W only for SECAM L
3584	4822 051 10102	1	k	0,25W only for SECAM L
3585	4822 117 11139	1,5	k	0,1W only for SECAM L
3586	4822 051 20332	3,3	k	0,1W only for SECAM L
3588	4822 051 20271	270	R	0,1W only for SECAM L
3589	4822 051 20681	680	R	0,1W only for SECAM L
3590	4822 051 20273	27	k	0,1W only for SECAM L
3592	4822 117 11149	82	k	0,1W only for SECAM L
3593	4822 051 10102	1	k	0,25W only for SECAM L
3595	4822 051 20472	4,7	k	0,1W for SECAM L&VHS
3594	4822 051 20101	100	R	0,1W for S-VHS&SEC L
3596	4822 051 20472	4,7	k	0,1W for SECAM L&VHS
3597	4822 117 10833	10	k	0,1W only for PAL
3598	4822 117 11139	1,5	k	0,1W for MESECAM det.
3599	4822 051 20392	3,9	k	0,1W for MESECAM det.
3600	4822 051 20391	390	R	0,1W
3601	4822 051 20561	560	R	0,1W
3606	4822 117 12322	8,2	R	0,1W
3607	4822 117 11139	1,5	k	0,1W
3608	4822 117 12323	1,8	k	0,1W
3610	4822 117 12323	1,8	k	0,1W
3611	4822 117 12324	5,6	k	0,1W
3612	4822 117 11089	3,3	k	0,1W for VHS&SEC L
3612	4822 051 20272	2,7	k	0,1W for S-VHS&SEC L
3613	4822 051 20279	27	R	0,1W
3614	4822 051 20279	27	R	0,1W
3615	4822 051 20332	3,3	k	0,1W
3616	4822 051 20279	27	R	0,1W
3617	4822 051 20392	3,9	k	0,1W for VHS&SEC L
3617	4822 117 11089	3,3	k	0,1W for S-VHS&SEC L
3618	4822 117 12324	5,6	k	0,1W
3618	4822 051 20682	6,8	k	0,1W
3619	4822 117 12325	2,2	k	0,1W
3619	4822 117 12323	1,8	k	0,1W
3622	4822 051 20472	4,7	k	0,1W
3623	4822 051 20472	4,7	k	0,1W
3624	4822 051 20472	4,7	k	0,1W
3625	4822 117 10833	10	k	0,1W
3629	4822 051 20331	330	R	0,1W for flying erase head
3630	4822 051 20331	330	R	0,1W for flying erase head
3635	4822 117 10833	10	k	0,1W for flying erase head
3636	4822 051 20008	0	R	0,1W for flying erase head
3637	4822 051 20331	330	R	0,1W for flying erase head
3638	4822 051 20331	330	R	0,1W for flying erase head
3639	4822 117 10833	10	k	0,1W for flying erase head
3640	4822 117 11449	2,2	k	0,1W for flying erase head
3641	4822 051 20392	3,9	k	0,1W for flying erase head
3642	4822 051 20271	270	R	0,1W
3643	4822 117 12326	6,8	R	0,1W
3644	4822 117 12327	820	R	0,1W
3645	4822 051 20751	750	R	0,1W
3646	4822 051 20472	4,7	k	0,1W
3647	4822 051 20472	4,7	k	0,1W
3648	4822 051 20101	100	R	0,1W
3650	4822 051 10102	1	k	0,25W only for OSD
3655	4822 051 20479	47	R	0,1W only for OSD
3657	4822 051 20471	470	R	0,1W only for OSD
3660	4822 051 20471	470	R	0,1W only for OSD
3662	4822 051 20391	390	R	0,1W only for OSD
3664	4822 051 20479	47	R	0,1W only for OSD
3665	4822 051 20221	220	R	0,1W only for OSD
3670	4822 051 20472	4,7	k	0,1W only for OSD
3673	4822 051 10102	1	k	0,25W only for OSD
3674	4822 051 20472	4,7	k	0,1W only for OSD
3693	4822 051 20221	220	R	0,1W only for OSD
3696	4822 051 20221	220	R	0,1W only for OSD
3699	4822 051 20221	220	R	0,1W only for OSD
3710	4822 051 20104	100	k	0,1W for VPS/PDC no TXT
3715	4822 051 20682	6,8	k	0,1W for VPS/PDC no TXT
3720	4822 051 20105	1	M	0,1W for VPS/PDC no TXT
3735	4822 051 20682	6,8	k	0,1W for VPS/PDC no TXT
3740	4822 051 20105	1	M	0,1W for VPS/PDC no TXT
3742	4822 051 20101	100	R	0,1W for VPS/PDC no TXT
3743	4822 051 20101	100	R	0,1W for VPS/PDC no TXT
3745	4822 051 20474	470	k	0,1W for VPS/PDC no TXT
3749	4822 117 11449	2,2	k	0,1W for VPS/PDC no TXT
3760	4822 051 20101	100	R	0,1W
3761	4822 051 20008	0	R	0,1W for Modulator
3765	4822 051 20101	100	R	0,1W
3766	4822 051 10102	1	k	0,25W
3767	4822 051 10102	1	k	0,25W
3768	4822 051 20334	330	k	0,1W
3770	4822 051 20223	22	k	0,1W
3800	4822 100 11602	10	k	
3805	4822 117 10833	10	k	0,1W
3810	4822 051 20223	22	k	0,1W
3820	4822 051 20473	47	k	0,1W
3830	4822 117 10833	10	k	0,1W
3832	4822 051 10102	1	k	0,25W
3834	4822 051 20684	680	k	0,1W
3835	4822 117 11139	1,5	k	0,1W for Modulator
3836	4822 051 20104	100	k	0,1W
3838	4822 051 20104	100	k	0,1W
3840	4822 051 20182	1,8	k	0,1W
3842	4822 051 20332	3,3	k	0,1W
3844	4822 117 11449	2,2	k	0,1W
3846	4822 117 11449	2,2	k	0,1W
3848	4822 051 20561	560	R	0,1W
3849	4822 100 11417	2,2	k	0,3W
3850	4822 051 10102	1	k	0,25W for Modulator
3857	4822 051 10102	1	k	0,25W for Modulator
3860	4822 051 20101	100	R	0,1W
3865	4822 051 20101	100	R	0,1W
3900	4822 051 10102	1	k	0,25W only for S-VHS
3902	4822 051 20759	75	R	0,1W only for S-VHS
3905	4822 051 20331	330	R	0,1W only for S-VHS
3907	4822 051 20759	75	R	0,1W only for S-VHS
3910	4822 051 20472	4,7	k	0,1W only for S-VHS
3913	4822 051 20472	4,7	k	0,1W only for S-VHS
3915	4822 051 10102	1	k	0,25W only for RS232

COILS

5005	4822 526 10596	SM IND FXD HF-BEAD
5006	4822 526 10596	SM IND FXD HF-BEAD
5007	4822 157 71684	4.7μH 10%
5009	4822 157 71684	4.7μH 10% only for RS232
5016	4822 157 71461	22μH 10%
5017	4822 157 71684	4.7μH 10%
5053	4822 157 11002	0,33U
5055	4822 157 53252	22 μH
5060	4822 157 62985	0MUH33 20%EL0405
5150	4822 157 63343	10MUH for S-VHS/SQPB
5157	4822 157 71245	15μH 10%
5167	4822 157 70402	33μH
5175	4822 157 70655	82μH
5179	4822 157 71245	15μH 10%
5185	4822 157 70402	33μH only for SECAM L
5190	4822 526 10596	SM IND FXD HF-BEAD
5203	4822 157 70298	15μH for SQPB
5215	4822 157 70652	22μH for SQPB
5215	4822 157 71314	10μH 5% for S-VHS
5267	4822 157 71456	150μH 5% only for VHS
5269	4822 157 71456	150μH 5% only for VHS
5273	4822 157 70402	33μH only for VHS
5340	4822 157 70402	33μH only for VHS
5341	4822 157 71243	100μH 10% only for VHS
5360	4822 157 70676	33μH
5422	4822 157 71456	150μH 5% only for VHS
5550	4822 157 60082	68 μH only for SECAM L
5560	4822 157 10625	470μH 5% only for SECAM L
5562	4822 157 70669	100μH only for SECAM L
5564	4822 157 70669	100μH only for SECAM L
5570	4822 157 70676	33μH only for SECAM

⚠ ... Safety component, use only this type

Motherboard

5577	4822 157 71287	82µH 5% only for SECAM L
5580	4822 157 70669	100µH only for SECAM L
5586	4822 157 53252	22 µH only for SECAM L
5590	4822 157 52842	15 µH only for SECAM L
5592	4822 157 52842	15 µH only for SECAM L
5594	4822 157 52842	15 µH only for SECAM L
5620	4822 157 62768	47MUH 5%EL0405
5625	4822 157 62768	EL0607 S 82U 10%A
5627	4822 157 71243	100µH 10%
5630	4822 157 62768	47MUH for flying erase head
5658	4822 157 70649	4,7µH only for OSD
5659	4822 157 70649	4,7µH only for OSD
5669	4822 157 71314	10µH 5% only for OSD
5705	4822 157 71684	4.7µH 10% for VPS/PDC no TXT
5780	4822 157 71245	15µH 10%
5790	4822 157 71245	15µH 10%
5800	4822 157 71245	15µH 10%
5845	4822 157 71245	15µH 10%

DIODES

6004	4822 130 30621	1N4148
6006	4822 130 30621	1N4148
6010	4822 130 30621	1N4148 for LANC/FSE/MEI
6041	4822 130 30621	1N4148 for LANC/FSE/MEI
6042	4822 130 30621	1N4148 only for LANC/FSE
6043	4822 130 30621	1N4148 only for LANC/FSE
6044	4822 130 30621	1N4148 for LANC/FSE/MEI
6045	4822 130 30621	1N4148 for LANC/FSE/MEI
6046	4822 130 30621	1N4148 for LANC/FSE/MEI
6047	4822 130 30621	1N4148 only for LANC/FSE
6048	4822 130 30621	1N4148 only for LANC/FSE
6049	4822 130 82334	BAS85 only for S-VHS
6057	4822 130 10231	V298PB
6062	4822 130 30621	1N4148
6070	4822 130 30621	1N4148
6240	4822 130 30621	1N4148 only for VHS
6260	4822 130 30621	1N4148 only for VHS
6350	4822 130 30621	1N4148 only for VHS
6360	4822 130 80888	BA682 only for VHS
6425	4822 130 80888	BA682
6537	4822 130 30621	1N4148 only for VHS
6600	5322 130 30691	BAW56
6602	5322 130 30691	BAW56
6902	4822 130 81513	BZV55-C6V8 only for S-VHS
6903	4822 130 81513	BZV55-C6V8 only for S-VHS

TRANSISTORS & IC's

7011	5322 130 41982	BC848B
7013	5322 130 41983	BC858B only for S-VHS
7015	4822 130 63497	BCR135 only for S-VHS
7016	4822 130 10214	STD17N06 only for S-VHS
7017	4822 130 63497	BCR135 only for S-VHS
7018	5322 130 44647	BC368 only for S-VHS
7019	5322 209 11306	HEF4094BT PHIN
7022	5322 130 41982	BC848B
7024	4822 209 90961	ST24E16M1 only TXT
7025	4822 209 90961	ST24E16M1
7027	5322 209 31276	PC74HCT573T
7030	4822 209 13643	EPROM A. PCVP9 for S-VHS
7030	4822 209 13649	EPROM A. PCVP5 for VHS & TXT
7030	4822 209 13656	EPROM A. PCOP5 for VHS & OSD
7032	4822 209 32489	UPD4364G-12L not for TXT
7032	4822 209 91023	UM62256DM-70L only for TXT
7035	4822 209 90424	P80CL580HFT
7036	5322 130 41982	BC848B
7037	5322 130 41982	BC848B
7038	5322 130 41982	BC848B for LANC/FSE/MEI
7039	5322 130 41982	BC848B
7042	5322 130 41982	BC848B only for LANC/FSE
7043	5322 130 41982	BC848B for LANC/FSE/MEI
7044	5322 130 41982	BC848B for LANC/FSE/MEI
7045	4822 209 14881	UPD78011
7046	4822 209 14862	LT1381CS only for RS232
7050	4822 130 10233	TCRT5000L
7052	4822 130 10234	TCST1030L
7055	4822 130 10233	TCRT5000L
7057	4822 130 10232	S298P
7060	4822 130 10232	S298P
7067	5322 130 41982	BC848B
7069	5322 130 41982	BC848B
7070	4822 130 63619	BCR148
7071	5322 130 41982	BC848B
7072	5322 130 41982	BC848B
7073	5322 130 44779	BC338-40
7074	5322 130 41982	BC848B
7075	5322 130 41982	BC848B
7079	5322 130 41982	BC848B
7080	4822 209 32503	SAA1310T
7082	4822 209 63604	BA7046F
7083	5322 130 41982	BC848B
7085	4822 209 14879	TMP91C642AF O.SW for sets without Jog/Shuttle
7085	4822 209 14878	TMP91C642AF SW for Jog/Shuttle
7085	4822 209 15096	TMP91C642AF SW-L for Jog/Shuttle + LANC edit
7085	4822 209 15097	TMP91C642AF SW-RS for Jog/Shuttle + LANC edit+RS232
7090	4822 209 30146	L2722
7091	5322 130 41982	BC848B
7092	5322 130 41982	BC848B
7095	4822 209 13126	TDA5241
7097	5322 130 41982	BC848B only for OSD/VPT
7098	5322 130 41983	BC858B only for OSD/VPT
7099	5322 130 41982	BC848B only for OSD/VPT
7150	5322 130 41983	BC858B
7160	4822 130 63563	BCR133 only for VHS
7163	4822 130 63563	BCR133 only for VHS
7165	5322 130 41982	BC848B
7170	5322 130 42718	BFS20
7180	5322 130 41982	BC848B
7184	5322 130 41983	BC858B for S-VHS&SEC. L
7185	5322 130 41983	BC858B only for SECAM L
7190	4822 130 63563	BCR133
7193	4822 130 63563	BCR133
7195	5322 130 41982	BC848B for S-VHS/SQPB
7200	4822 130 63563	BCR133 for S-VHS/SQPB
7203	5322 130 41982	BC848B for S-VHS/SQPB
7210	5322 130 41983	BC858B for S-VHS/SQPB
7215	5322 130 41982	BC848B for S-VHS/SQPB
7217	5322 130 42718	BFS20 for S-VHS/SQPB
7225	5322 130 41982	BC848B only for VHS
7230	5322 130 41982	BC848B only for TXT&VHS
7235	5322 130 41982	BC848B only for VHS
7240	5322 130 41982	BC848B for VHS&SECAM L
7250	4822 130 63563	BCR133 only for VHS
7275	5322 130 42718	BFS20 only for VHS
7280	4822 130 63563	BCR133 only for SQPB
7285	5322 130 41982	BC848B only for SQPB
7290	4822 130 63619	BCR148 only for SQPB
7300	5322 130 41982	BC848B only for VHS
7305	5322 130 41983	BC858B only for OSD
7310	5322 130 41982	BC848B only for OSD
7320	4822 209 90423	LA7447M only for VHS
7335	5322 130 41983	BC858B only for VHS
7340	4822 209 90005	LC89973M-TLM only for VHS
7360	4822 130 83419	BCR183
7370	5322 209 11306	HEF4094BT only for VHS
7380	5322 209 11306	HEF4094BT
7550	5322 130 41982	BC848B only for SECAM L
7552	5322 130 41983	BC858B only for SECAM L
7560	5322 130 41982	BC848B only for SECAM L
7575	4822 209 90189	TDA4722/V2 only for SECAM L
7583	5322 130 41982	BC848B only for SECAM L
7588	5322 130 42718	BFS20 only for SECAM L
7593	5322 130 41982	BC848B only for SECAM L
7596	5322 130 44336	BSV52 for SECAM L&VHS
7598	4822 209 90107	LA7356 only for MESECAM det.
7600	4822 209 13598	TEA5704
7615	5322 130 44779	BC338-40
7618	4822 130 63497	BCR135
7620	4822 209 90421	STV5712
7630	5322 130 42718	BFS20 for flying erase head
7635	5322 130 42718	BFS20 for flying erase head
7640	5322 130 41982	BC848B for flying erase head
7645	4822 130 83419	BCR183 for flying erase head
7649	5322 209 14477	HEF4013BT
7650	5322 130 41982	BC848B only for OSD
7655	5322 130 41982	BC848B only for OSD
7664	5322 130 41983	BC858B only for OSD
7670	5322 130 41982	BC848B only for OSD

⚠ ... Safety component, use only this type

Motherboard, In / Out Board

7674	5322 130 41982	BC848B only for OSD
7690	4822 209 14874	LC74782M-9158 only for OSD
7720	4822 209 14873	SDA5649X for VPS/PDC no TXT
7820	5322 130 41982	BC848B
7825	4822 209 72742	L7812ACV for Modulator
7830	5322 209 70225	LM393D
7831	4822 130 42655	BC808-40
7832	5322 130 41982	BC848B
7834	5322 130 41983	BC858B
7840	5322 130 41982	BC848B
7850	5322 130 41983	BC858B for Modulator
7900	5322 130 41982	BC848B only for S-VHS
7905	5322 130 41982	BC848B only for S-VHS

In / Out Board

MISCELLANEOUS

1190	4822 157 70659	IND VAR 7MM 7PA 150KHZ
1250	4822 157 70971	COIL

CONNECTORS

1503	4822 265 30987	7p
1504	4822 265 20641	2P.
1505	4822 265 31287	3 P.
1508	4822 267 10458	CONN. 3P
1514	4822 265 41393	7P only for S-VHS
1514	4822 265 20641	2P. only for VHS
1518	4822 265 41393	7P only for E3/Mic
1519	4822 267 10459	CONN.3P only for E3
1526	4822 267 10461	CONN. 18P only for S-VHS
1527	4822 267 41222	5P. FEM. only for TXT
1635	4822 267 10465	CONN. 2P
1636	4822 267 10466	CONN. 5P
1637	4822 267 10467	CONN. 20P
1638	4822 265 10484	PIN ASSY 18P
1639	4822 267 10466	CONN. 5P
1910	4822 265 10611	CINCH SOCKET 4FOLD
1916	4822 265 10612	SCART SOCKET 21P
1917	4822 265 10479	SCART SOCKET

CAPACITORS

2000	4822 122 33177	10	nF	50V	
2004	4822 126 13176	100	nF	25V	only for S-VHS
2005	4822 126 13176	100	nF	25V	only for S-VHS
2008	4822 122 33177	10	nF	50V	only for S-VHS
2009	4822 122 33177	10	nF	50V	only for S-VHS
2010	4822 122 33177	10	nF	50V	
2039	4822 126 13176	100	nF	25V	
2041	4822 124 80231	47	µF	16V	
2043	4822 122 33177	10	nF	50V	
2047	5322 122 32268	470	pF	50V	
2048	5322 122 32268	470	pF	50V	
2050	5322 122 32268	470	pF	50V	
2051	5322 122 32268	470	pF	50V	
2077	4822 124 80231	47	µF	16V	
2082	5322 122 32268	470	pF	50V	
2084	5322 122 32268	470	pF	50V	
2086	5322 122 32268	470	pF	50V	
2088	5322 122 32268	470	pF	50V	
2092	4822 122 33514	68	pF	50V	only for TXT
2093	4822 124 40756	1	µF	100V	only for TXT&VHS
2095	4822 124 40756	1	µF	100V	only for TXT&VHS
2096	4822 124 40756	1	µF	100V	only for TXT&VHS
2097	5322 122 31946	27	pF	63V	only for TXT&VHS
2098	4822 124 40756	1	µF	100V	only for TXT&VHS
2099	4822 122 33342	33	nF	63V	only for TXT&VHS
2103	4822 126 13176	100	nF	25V	
2105	4822 122 33177	10	nF	50V	only for S-VHS
2107	5322 124 41431	22	µF	35V	only for S-VHS
2112	4822 122 33177	10	nF	50V	only for S-VHS
2113	4822 122 33177	10	nF	50V	only for S-VHS
2130	5322 122 32268	470	pF	50V	
2132	4822 122 33177	10	nF	50V	
2165	4822 122 33514	68	pF	50V	only for TXT
2190	4822 126 12768	47	nF		
2192	4822 126 12768	47	nF		
2194	4822 126 12768	47	nF		
2196	4822 126 12768	47	nF		
2198	4822 126 12768	47	nF		only for video in front
2200	4822 126 12768	47	nF		only for S-VHS
2201	4822 126 13176	100	nF	25V	
2202	4822 126 12768	47	nF		only for S-VHS
2203	4822 122 33515	82	pF	63V	only for S-VHS
2204	4822 126 12768	47	nF		only for S-VHS
2206	4822 122 33177	10	nF	50V	only for S-VHS
2216	4822 126 13176	100	nF	25V	
2308	4822 124 81029	100	µF	25V	
2310	4822 124 41584	100	µF	10V	
2400	4822 124 42213	100	µF	16V	only for E3
2403	4822 124 81029	100	µF	25V	only for E3
2405	4822 124 80636	470	µF	16V	
2406	5322 124 41431	22	µF	35V	
2411	4822 124 40763	2,2	µF	100V	
2413	4822 124 40763	2,2	µF	100V	
2414	4822 122 33175	2,2	nF	50V	
2415	4822 122 33175	2,2	nF	50V	
2420	4822 124 41579	10	µF	50V	
2423	4822 124 41579	10	µF	50V	
2425	5322 122 32268	470	pF	50V	
2430	5322 122 32268	470	pF	50V	
2432	4822 124 41579	10	µF	50V	
2435	4822 124 41579	10	µF	50V	
2438	4822 124 41579	10	µF	50V	
2440	4822 124 41579	10	µF	50V	
2442	4822 124 41579	10	µF	50V	
2444	5322 126 10223	4,7	nF	63V	
2445	4822 126 13057	220	nF	25V	
2447	4822 124 41579	10	µF	50V	
2449	4822 124 41579	10	µF	50V	
2455	4822 122 33177	10	nF	50V	
2457	4822 124 40768	0,47	µF	100V	
2464	4822 124 40763	2,2	µF	100V	
2465	5322 122 32654	22	nF	63V	
2466	5322 122 32654	22	nF	63V	
2468	4822 124 41584	100	µF	10V	
2470	4822 124 81029	100	µF	25V	
2473	4822 122 33515	82	pF	63V	
2475	4822 126 13176	100	nF	25V	
2476	5322 122 32654	22	nF	63V	
2477	4822 126 13057	220	nF	25V	
2485	5322 122 32654	22	nF	63V	
2490	5322 122 32654	22	nF	63V	
2507	4822 124 40433	47	µF	25V	only for dubbing
2514	5322 121 42489	33	nF	250V	only for dubbing
2515	4822 121 70673	100	nF	63V	only for dubbing
2525	5322 122 32268	470	pF	50V	
2528	5322 122 32268	470	pF	50V	
2530	4822 124 41579	10	µF	50V	
2533	4822 124 41579	10	µF	50V	
2535	5322 126 10223	4,7	nF	63V	
2538	4822 126 13057	220	nF	25V	
2540	4822 126 13057	220	nF	25V	only for E3
2544	4822 126 13057	220	nF	25V	only for E3
2549	4822 126 13057	220	nF	25V	
2552	4822 126 13057	220	nF	25V	
2555	4822 126 13057	220	nF	25V	
2558	4822 126 13057	220	nF	25V	
2560	4822 121 42408	220	nF	63V	
2563	4822 121 42408	220	nF	63V	
2565	4822 126 13057	220	nF	25V	
2569	4822 126 13057	220	nF	25V	
2572	4822 126 13176	100	nF	25V	
2579	4822 126 13176	100	nF	25V	only for micro
2583	4822 124 41584	100	µF	10V	
2586	5322 122 32654	22	nF	63V	only for VHS
2586	4822 122 33128	15	nF	63V	only for S-VHS
2589	4822 126 13295	15	nF		
2590	5322 122 34098	10	nF	63V	only for VHS
2590	4822 126 13293	6.8	nF		only for S-VHS
2598	4822 126 13057	220	nF	25V	only for micro
2603	4822 124 41579	10	µF	50V	

In / Out Board

2618	5322 122 31865	1,5	nF	63V	
2620	4822 124 41579	10	µF	50V	
2623	5322 124 41431	22	µF	35V	
2625	5322 126 10184	680	pF		
2627	4822 126 13057	220	nF	25V	
2633	4822 122 33891	3,3	nF	63V	only for S-VHS
2640	5322 122 32654	22	nF	63V	only for S-VHS
2645	5322 122 31863	330	pF	50V	
2648	4822 121 70348	10	nF	63V	not for dubbing
2648	4822 121 70345	5,6	nF	63V	only for dubbing
2650	4822 124 40433	47	µF	25V	
2653	4822 124 40433	47	µF	25V	only for dubbing
2658	4822 126 13176	100	nF	25V	

RESISTORS

3000	4822 051 20101	100	R	0,1W	
3001	4822 051 20101	100	R	0,1W	
3002	4822 117 10833	10	k	0,1W	only for S-VHS
3003	4822 051 20471	470	R	0,1W	only for S-VHS
3004	4822 051 10102	1	k	0,25W	only for S-VHS
3005	4822 051 20759	75	R	0,1W	only for S-VHS
3006	4822 051 20472	4,7	k	0,1W	only for S-VHS
3009	4822 051 20472	4,7	k	0,1W	only for S-VHS
3010	4822 051 20472	4,7	k	0,1W	
3012	4822 051 20472	4,7	k	0,1W	
3014	4822 051 20472	4,7	k	0,1W	only for S-VHS
3016	4822 051 20472	4,7	k	0,1W	only for S-VHS
3018	4822 051 20472	4,7	k	0,1W	only for S-VHS
3020	4822 051 20472	4,7	k	0,1W	only for S-VHS
3022	4822 051 20471	470	R	0,1W	only for S-VHS
3024	4822 051 20759	75	R	0,1W	only for S-VHS
3025	4822 051 10102	1	k	0,25W	only for S-VHS
3039	4822 051 10102	1	k	0,25W	
3041	4822 051 20759	75	R	0,1W	
3042	4822 051 20759	75	R	0,1W	
3047	4822 051 20471	470	R	0,1W	
3048	4822 051 20471	470	R	0,1W	
3049	4822 051 20471	470	R	0,1W	
3050	4822 051 20471	470	R	0,1W	
3053	4822 051 20472	4,7	k	0,1W	
3055	4822 051 20472	4,7	k	0,1W	
3056	4822 051 20689	68	R	0,1W	only for S-VHS
3059	4822 051 20472	4,7	k	0,1W	only for S-VHS
3063	4822 051 20689	68	R	0,1W	for S-VHS & SEC L
3064	4822 051 20008	0	R	0,1W	only for VHS
3066	4822 051 20472	4,7	k	0,1W	for S-VHS & SEC L
3067	4822 051 20689	68	R	0,1W	for S-VHS & SEC L
3068	4822 051 20008	0	R	0,1W	only for VHS
3069	4822 051 20008	0	R	0,1W	only for VHS
3070	4822 051 20472	4,7	k	0,1W	for S-VHS & SEC L
3072	4822 051 20689	68	R	0,1W	only for S-VHS
3074	4822 051 20472	4,7	k	0,1W	only for S-VHS
3076	4822 051 20759	75	R	0,1W	
3077	4822 051 10102	1	k	0,25W	
3086	4822 051 20471	470	R	0,1W	
3087	4822 051 20471	470	R	0,1W	
3088	4822 051 20471	470	R	0,1W	
3089	4822 051 20471	470	R	0,1W	
3090	4822 051 20472	4,7	k	0,1W	only for TXT
3091	4822 051 10102	1	k	0,25W	only for TXT
3092	4822 051 20472	4,7	k	0,1W	only for TXT&VHS
3092	4822 051 20101	100	R	0,1W	for TXT & S-VHS
3094	4822 051 20008	0	R	0,1W	only for TXT&VHS
3095	4822 051 10102	1	k	0,25W	only for TXT&VHS
3096	4822 051 20479	47	R	0,1W	only for TXT&VHS
3097	4822 051 20272	2,7	k	0,1W	only for TXT&VHS
3098	4822 051 10102	1	k	0,25W	only for TXT&VHS
3107	4822 051 10102	1	k	0,25W	only for S-VHS
3125	4822 051 20759	75	R	0,1W	
3130	4822 051 20125	1,2	M	0,1W	
3131	4822 051 10102	1	k	0,25W	
3132	4822 051 20104	100	k	0,1W	
3133	4822 051 20334	330	k	0,1W	
3134	4822 051 20104	100	k	0,1W	
3135	4822 051 20125	1,2	M	0,1W	
3136	4822 051 20101	100	R	0,1W	
3138	4822 051 20125	1,2	M	0,1W	
3147	4822 051 10102	1	k	0,25W	only for TXT&VHS
3148	4822 051 10102	1	k	0,25W	only for TXT&VHS
3149	4822 051 20471	470	R	0,1W	only for TXT&VHS
3150	4822 051 10102	1	k	0,25W	only for TXT&VHS
3151	4822 051 20471	470	R	0,1W	only for TXT&VHS
3161	4822 051 20472	4,7	k	0,1W	only for TXT
3162	4822 051 10102	1	k	0,25W	only for TXT
3165	4822 051 20472	4,7	k	0,1W	only for TXT&VHS
3165	4822 051 20101	100	R	0,1W	for TXT&S-VHS
3198	4822 051 20008	0	R	0,1W	not for E3 in
3199	4822 051 20008	0	R	0,1W	only for VHS
3200	4822 051 20101	100	R	0,1W	
3201	4822 051 20101	100	R	0,1W	
3202	4822 051 20008	0	R	0,1W	only for VHS
3203	4822 117 11449	2,2	k	0,1W	only for S-VHS
3204	4822 051 20008	0	R	0,1W	only for VHS
3205	4822 117 11449	2,2	k	0,1W	only for S-VHS
3206	4822 051 20101	100	R	0,1W	only for S-VHS
3207	4822 051 20471	470	R	0,1W	only for S-VHS
3208	4822 051 20223	22	k	0,1W	only for S-VHS
3209	4822 051 20822	8,2	k	0,1W	only for S-VHS
3210	4822 051 10102	1	k	0,25W	
3211	4822 051 20122	1,2	k	0,1W	only for S-VHS
3212	4822 051 10102	1	k	0,25W	
3213	4822 117 11449	2,2	k	0,1W	
3214	4822 051 20471	470	R	0,1W	only for S-VHS
3215	4822 051 20008	0	R	0,1W	only for TXT&VHS
3216	4822 051 20821	820	R	0,1W	only for S-VHS
3217	4822 051 20473	47	k	0,1W	only for TXT
3370	4822 051 20334	330	k	0,1W	
3371	4822 051 20104	100	k	0,1W	only for headphone
3372	4822 117 11449	2,2	k	0,1W	only for headphone
3373	4822 117 11449	2,2	k	0,1W	only for headphone
3374	4822 051 20223	22	k	0,1W	
3375	4822 051 20563	56	k	0,1W	
3376	4822 051 20104	100	k	0,1W	
3377	4822 051 20153	15	k	0,1W	
3378	4822 051 20562	5,6	k	0,1W	
3379	4822 051 20569	56	R	0,1W	only for headphone
3380	4822 117 10833	10	k	0,1W	
3381	4822 117 10833	10	k	0,1W	
3382	4822 051 20104	100	k	0,1W	
3383	4822 051 20104	100	k	0,1W	
3384	4822 117 10833	10	k	0,1W	
3385	4822 117 10833	10	k	0,1W	
3386	4822 051 20391	390	R	0,1W	
3387	4822 051 20391	390	R	0,1W	
3388	4822 117 10833	10	k	0,1W	
3389	4822 051 20104	100	k	0,1W	
3390	4822 117 10833	10	k	0,1W	
3391	4822 051 20391	390	R	0,1W	
3392	4822 051 20391	390	R	0,1W	
3393	4822 051 20569	56	R	0,1W	only for headphone
3400	4822 117 10833	10	k	0,1W	only for headphone
3403	4822 117 10833	10	k	0,1W	only for headphone
3405	4822 051 20569	56	R	0,1W	only for headphone
3406	4822 051 20569	56	R	0,1W	only for headphone
3408	4822 100 11633	47	k		
3410	4822 100 11633	47	k		
3417	4822 051 20683	68	k	0,1W	
3419	4822 051 20683	68	k	0,1W	
3420	4822 051 20104	100	k	0,1W	
3423	4822 051 20104	100	k	0,1W	
3425	4822 051 20471	470	R	0,1W	
3428	4822 051 20391	390	R	0,1W	
3430	4822 051 20471	470	R	0,1W	
3432	4822 051 20391	390	R	0,1W	
3434	4822 051 20104	100	k	0,1W	
3435	4822 051 20104	100	k	0,1W	
3438	4822 051 20335	3,3	M	0,1W	
3440	4822 117 10833	10	k	0,1W	
3442	4822 051 20682	6,8	k	0,1W	
3450	4822 051 20101	100	R	0,1W	
3453	4822 051 20101	100	R	0,1W	
3459	4822 051 20223	22	k	0,1W	
3460	4822 051 20183	18	k	0,1W	
3462	4822 051 20184	180	k	0,1W	
3471	4822 051 20101	100	R	0,1W	
3472	4822 051 20101	100	R	0,1W	
3473	4822 117 10833	10	k	0,1W	
3474	4822 117 10833	10	k	0,1W	
3475	4822 051 20822	8,2	k	0,1W	
3477	4822 051 20221	220	R	0,1W	

3479	4822 051 20273	27	k	0,1W	
3480	4822 051 20829	82	R	0,1W	
3482	4822 051 20474	470	k	0,1W	
3483	4822 117 11383	12	k	0,1W	
3485	4822 101 11064	2,2	k		
3487	4822 051 20681	680	R	0,1W	
3492	4822 051 20561	560	R	0,1W	only for VHS
3492	4822 051 20361	360	R	0,1W	only for S-VHS
3494	4822 051 20681	680	R	0,1W	only for S-VHS
3495	4822 051 20223	22	k	0,1W	only for S-VHS
3497	4822 051 20339	33	R	0,1W	only for dubbing
3499	4822 051 20122	1,2	k	0,1W	only for dubbing
3500	4822 051 20223	22	k	0,1W	only for dubbing
3503	4822 051 20562	5,6	k	0,1W	only for dubbing
3505	4822 051 20332	3,3	k	0,1W	only for dubbing
3509	4822 051 20331	330	R	0,1W	only for dubbing
3510	4822 051 20124	120	k	0,1W	only for dubbing
3512	4822 051 20153	15	k	0,1W	only for dubbing
3514	4822 051 20229	22	R	0,1W	only for dubbing
3517	4822 051 20008	0	R	0,1W	not for dubbing
3519	4822 051 20008	0	R	0,1W	
3525	4822 051 20471	470	R	0,1W	
3528	4822 051 20471	470	R	0,1W	
3540	4822 051 20391	390	R	0,1W	only for E3
3544	4822 051 20391	390	R	0,1W	only for E3
3549	4822 051 20391	390	R	0,1W	
3552	4822 051 20391	390	R	0,1W	
3555	4822 051 20391	390	R	0,1W	
3558	4822 051 20391	390	R	0,1W	
3560	4822 051 20391	390	R	0,1W	
3563	4822 051 20391	390	R	0,1W	
3565	4822 051 10102	1	k	0,25W	
3569	4822 051 10102	1	k	0,25W	
3572	4822 051 20153	15	k	0,1W	not for micro
3576	4822 051 20333	33	k	0,1W	not for micro
3579	4822 051 20333	33	k	0,1W	only for micro
3586	4822 051 20471	470	R	0,1W	
3590	4822 051 20821	820	R	0,1W	
3592	4822 117 10833	10	k	0,1W	only for micro
3595	4822 051 20474	470	k	0,1W	only for micro
3598	4822 051 20472	4,7	k	0,1W	only for micro
3603	4822 051 20273	27	k	0,1W	
3604	4822 117 10833	10	k	0,1W	
3605	4822 051 20332	3,3	k	0,1W	
3610	4822 051 20332	3,3	k	0,1W	
3615	4822 051 20122	1,2	k	0,1W	
3625	4822 051 20104	100	k	0,1W	
3627	4822 051 20335	3,3	M	0,1W	
3633	4822 117 10833	10	k	0,1W	only for S-VHS
3635	4822 117 10833	10	k	0,1W	only for S-VHS
3640	4822 117 10833	10	k	0,1W	only for S-VHS
3643	4822 117 10833	10	k	0,1W	only for S-VHS
3645	4822 101 11455	100,	L	k	
3648	4822 051 20008	0	R	0,1W	not for dubbing
3650	4822 051 20478	4,7	R	0,1W	
3655	4822 051 20221	220	R	0,1W	
3658	4822 051 20333	33	k	0,1W	
3660	4822 051 20339	33	R	0,1W	
3665	4822 051 20332	3,3	k	0,1W	
3668	4822 051 20122	1,2	k	0,1W	
3670	4822 051 20223	22	k	0,1W	
3674	4822 051 20562	5,6	k	0,1W	
3675	4822 051 20221	220	R	0,1W	

COILS

5077	4822 157 70676	33µH	
5095	4822 157 70652	22µH	only for TXT&VHS
5205	4822 157 52842	15 µH	only for S-VHS
5308	4822 157 70676	33µH	
5310	4822 157 70676	33µH	
5470	4822 157 71243	100µH 10%	
5620	4822 157 10586	2,2µH 10%	

DIODES

6032	4822 130 81513	BZV55-C6V8	only for S-VHS
6034	4822 130 81513	BZV55-C6V8	only for S-VHS
6036	4822 130 81513	BZV55-C6V8	only for S-VHS
6038	4822 130 81513	BZV55-C6V8	
6044	4822 130 81513	BZV55-C6V8	
6045	4822 130 81513	BZV55-C6V8	
6054	4822 130 10416	PRLL4001	
6055	4822 130 30621	1N4148	
6056	4822 130 30621	1N4148	
6076	4822 130 81513	BZV55-C6V8	
6077	4822 130 81513	BZV55-C6V8	only for S-VHS
6079	4822 130 81513	BZV55-C6V8V	only for S-VHS
6081	4822 130 81513	BZV55-C6V8	only for S-VHS
6126	4822 130 81513	BZV55-C6V8	
6128	4822 130 81513	BZV55-C6V8	
6130	4822 130 30621	1N4148	
6132	4822 130 30621	1N4148	
6180	4822 130 81513	BZV55-C6V8	
6605	4822 130 81513	BZV55-C6V8	

TRANSISTORS & IC's

7000	5322 209 11306	HEF4094BT	PHIN
7003	4822 130 63563	BCR133	only for S-VHS
7005	5322 130 41982	BC848B	only for S-VHS
7006	4822 130 42616	BC818-40	only for S-VHS
7009	4822 130 42616	BC818-40	only for S-VHS
7010	5322 130 41983	BC858B	only for S-VHS
7014	4822 130 42616	BC818-40	only for S-VHS
7016	4822 130 42616	BC818-40	only for S-VHS
7018	4822 130 42616	BC818-40	only for S-VHS
7020	4822 130 42616	BC818-40	only for S-VHS
7022	4822 130 63563	BCR133	only for S-VHS
7024	5322 130 41982	BC848B	only for S-VHS
7039	5322 130 41982	BC848B	
7053	4822 130 42616	BC818-40	
7055	4822 130 42616	BC818-40	
7059	4822 130 42616	BC818-40	only for S-VHS
7066	4822 130 42616	BC818-40	for S-VHS & SEC L
7070	4822 130 42616	BC818-40	for S-VHS & SEC L
7072	4822 130 42616	BC818-40	only for S-VHS
7077	5322 130 41982	BC848B	
7092	5322 130 41983	BC858B	only for TXT
7097	5322 130 41982	BC848B	only for TXT&VHS
7098	5322 130 41983	BC858B	only for TXT&VHS
7100	4822 209 32327	BA7605N	only for TXT&VHS
7110	4822 209 33306	BA7604N	only for S-VHS
7130	5322 130 41982	BC848B	
7134	5322 130 41982	BC848B	
7150	5322 130 41982	BC848B	only for TXT&VHS
7165	5322 130 41983	BC858B	only for TXT
7200	4822 209 13608	TDA6920X	
7202	5322 130 41983	BC858B	only for S-VHS
7205	5322 130 41983	BC858B	only for S-VHS
7206	5322 130 41982	BC848B	only for S-VHS
7208	5322 130 41982	BC848B	only for S-VHS
7210	5322 130 41982	BC848B	only for S-VHS
7213	5322 130 41983	BC858B	
7400	4822 209 90455	TDA9614H/N1	
7402	5322 209 11306	HEF4094BT	PHIN
7450	4822 130 42513	BC858C	only for headphone
7451	4822 130 42616	BC818-40	only for headphone
7452	4822 130 42616	BC818-40	only for headphone
7453	5322 130 42136	BC848C	
7454	4822 130 42513	BC858C	
7455	5322 130 41983	BC858B	
7460	4822 130 42616	BC818-40	
7461	4822 130 42513	BC858C	
7462	4822 130 42616	BC818-40	
7463	4822 130 42513	BC858C	
7464	4822 130 42616	BC818-40	
7465	4822 130 42616	BC818-40	
7466	4822 130 42616	BC818-40	
7467	4822 130 42616	BC818-40	
7468	4822 130 42513	BC858C	
7485	5322 130 41982	BC848B	
7495	5322 130 41982	BC848B	only for S-VHS
7500	5322 130 41983	BC858B	only for dubbing
7505	5322 130 41982	BC848B	only for dubbing
7510	4822 130 42616	BC818-40	only for dubbing
7515	4822 130 42655	BC808-40	only for dubbing
7595	4822 130 42616	BC818-40	only for micro
7600	4822 130 83419	BCR183	only for micro
7605	4822 130 60373	BC856B	

In / Out Board, S-VHS Board & Transcoder Board

7610	4822 130 42804	BC817-25
7615	4822 130 42804	BC817-25
7635	5322 130 41982	BC848B only for S-VHS
7640	5322 130 41982	BC848B only for S-VHS
7655	4822 130 42655	BC808-40
7660	5322 130 41983	BC858B
7665	5322 130 41982	BC848B
7675	5322 130 44779	BC338-40

S-VHS Board & Transcoder Board

MISCELLANEOUS

1002	4822 320 40308	F.LC F.3MHZ2 only for SECAM L
1004	4822 157 70656	COIL only for SECAM L
1023	4822 157 70666	IND VAR 10MHZ7
1025	4822 242 81724	Filter.LC FXD BP/LP
1027	4822 157 70656	Coil
1029	4822 157 70656	Coil
1030	4822 242 81723	4.433619MHZ
1052	4822 201 00009	DEL LINE 100NS
1054	4822 320 50337	DEL LINE 640NS
1056	4822 320 40308	F.LC F.3MHZ2 SEL4155 LP B
1058	4822 157 70665	F.LC F.3MHZ3 MYV-23R LP B
1060	4822 157 70684	COIL
1073	4822 157 70666	IND VAR 10MHZ7 for SECAM L
1074	4822 157 70664	IND VAR 10MHZ7 for SECAM L
1075	4822 157 70963	COIL 7X7 only for SECAM L
1076	4822 157 70664	COIL only for SECAM L
1077	4822 157 70963	COIL 7X7 only for SECAM L
1080	4822 157 70665	F.LC F.3MHZ3 for SECAM L
1082	4822 157 70665	F.LC F.3MHZ3 for SECAM L
1084	4822 320 40232	DEL LINE 350NS for SECAM L
1085	4822 242 72965	Crystal 17,734476 MHz for SEC L

CONNECTORS

1524	4822 267 10531	CONN. 15P on Transcoder PCB
1524	4822 267 10528	CONN. 15P on S-VHS board
1525	4822 267 10531	CONN. 15P on Transcoder PCB
1525	4822 267 10528	CONN. 15P on S-VHS board
1526	4822 267 51257	18 P
1530	4822 267 10475	CONN. 18P
1531	4822 267 10475	CONN. 18P

CAPACITORS

2001	4822 122 33177	10	nF	50V	
2002	4822 126 13176	100	nF	25V	
2003	4822 126 13176	100	nF	25V	
2004	4822 126 13176	100	nF	25V	
2005	4822 122 33177	10	nF	50V	
2006	4822 126 13176	100	nF	25V	
2007	4822 122 33177	10	nF	50V	
2008	4822 051 20471	10	0	50V	
2010	4822 124 40196	220	µF	16V	
2014	4822 126 13176	100	nF	25V	
2018	4822 126 13176	100	nF	25V	
2020	4822 124 41584	100	µF	10V	
2022	4822 122 33177	10	nF	50V	
2024	4822 122 33177	10	nF	50V	
2026	4822 122 33177	10	nF	50V	only for SECAM L
2030	4822 122 33177	10	nF	50V	
2032	4822 122 33177	10	nF	50V	
2034	4822 122 33177	10	nF	50V	
2035	4822 122 33515	82	pF	63V	
2036	4822 122 33177	10	nF	50V	
2037	4822 122 33515	82	pF	63V	
2038	4822 122 33177	10	nF	50V	
2040	4822 122 33177	10	nF	50V	
2042	4822 124 41579	10	µF	50V	
2044	4822 124 41579	10	µF	50V	
2046	4822 122 33177	10	nF	50V	
2048	4822 122 33177	10	nF	50V	
2050	4822 122 33177	10	nF	50V	
2052	4822 124 40756	1	µF	100V	
2054	4822 124 40756	1	µF	100V	
2056	4822 124 40756	1	µF	100V	
2058	4822 124 40756	1	µF	100V	
2060	4822 122 33177	10	nF	50V	
2070	4822 122 33177	10	nF	50V	only for SECAM L
2072	4822 124 41579	10	µF	50V	only for SECAM L
2074	4822 124 41579	10	µF	50V	only for SECAM L
2076	4822 124 41579	10	µF	50V	only for SECAM L
2080	4822 122 33177	10	nF	50V	
2084	5322 122 33861	120	pF	50V	only for SECAM L
2094	5322 122 33538	150	pF	63V	only for SECAM L
2106	5322 122 33538	150	pF	63V	only for SECAM L
2117	5322 126 10511	1	nF	50V	
2140	4822 124 41584	100	µF	10V	
2142	4822 122 33177	10	nF	50V	
2164	4822 122 33177	10	nF	50V	
2166	5322 122 32452	47	pF	63V	
2168	5322 126 10511	1	nF	50V	only for ME SECAM
2170	5322 126 10511	1	nF	50V	
2172	4822 124 40756	1	µF	100V	
2173	5322 126 10511	1	nF	50V	
2174	5322 126 10511	1	nF	50V	
2175	4822 122 33342	33	nF	63V	
2180	4822 122 33514	68	pF	50V	
2184	5322 122 32268	470	pF	50V	
2194	5322 126 10223	4,7	nF	63V	
2200	4822 124 40433	47	µF	25V	
2201	4822 122 33177	10	nF	50V	
2202	5322 126 10184	680	pF		
2204	4822 124 41579	10	µF	50V	
2206	4822 122 33177	10	nF	50V	
2207	4822 121 70463	3.3	nF	100V	
2208	4822 122 33891	3,3	nF	63V	
2210	4822 122 33177	10	nF	50V	
2212	4822 122 33177	10	nF	50V	
2216	5322 122 32661	56	pF	50V	
2218	4822 122 33177	10	nF	50V	
2219	4822 122 33515	82	pF	63V	
2220	4822 122 33177	10	nF	50V	
2228	5322 126 10511	1	nF	50V	
2232	5322 122 32661	56	pF	50V	
2236	5322 126 10511	1	nF	50V	
2238	4822 122 33172	390	pF	50V	
2240	5322 122 32452	47	pF	63V	
2246	4822 122 33177	10	nF	50V	
2248	4822 122 33177	10	nF	50V	
2249	4822 122 33177	10	nF	50V	
2250	4822 124 11763	1	µF	16V	
2256	5322 122 32531	100	pF	50V	
2260	5322 126 10511	1	nF	50V	
2262	4822 122 33515	82	pF	63V	
2263	4822 122 33177	10	nF	50V	
2264	4822 122 33177	10	nF	50V	
2266	4822 122 33177	10	nF	50V	
2268	5322 126 10511	1	nF	50V	
2269	5322 126 10511	1	nF	50V	
2270	4822 122 33342	33	nF	63V	
2271	4822 122 33177	10	nF	50V	
2272	4822 122 33177	10	nF	50V	
2273	4822 122 33177	10	nF	50V	
2274	4822 122 33342	33	nF	63V	
2275	4822 122 33175	2,2	nF	50V	
2276	4822 122 33177	10	nF	50V	
2277	4822 122 33514	68	pF	50V	
2278	4822 124 40756	1	µF	100V	
2280	4822 124 40246	4,7	µF	63V	
2286	5322 122 32661	56	pF	50V	
2288	4822 122 33177	10	nF	50V	
2290	4822 122 33177	10	nF	50V	
2292	4822 121 42408	220	nF	63V	
2294	4822 122 33177	10	nF	50V	
2296	4822 124 40768	0,47	µF	100V	
2297	5322 122 32654	22	nF	63V	
2298	4822 124 40763	2,2	µF	V	
2300	4822 124 40768	0,47	µF	100V	

S-VHS Board & Transcoder Board

2302	5322 126 10511	1	nF	50V	
2304	4822 122 33342	33	nF	63V	
2306	4822 125 50355	33		63V	
2307	5322 122 31873	2,7	pF	100V	
2308	4822 122 33342	33	nF	63V	
2309	5322 122 32967	5,6	pF	63V	
2312	5322 122 32531	100	pF	50V	
2314	4822 122 33177	10	nF	50V	
2321	5322 126 10511	1	nF	50V	
2324	5322 126 10511	1	nF	50V	only for ME SECAM
2330	4822 122 33177	10	nF	50V	only for ME SECAM
2332	5322 126 10511	1	nF	50V	only for ME SECAM
2334	5322 122 33861	120	pF	50V	only for ME SECAM
2346	5322 126 10511	1	nF	50V	only for SECAM
2348	5322 122 33861	120	pF	50V	only for SECAM
2358	4822 126 13695	82	pF	63V	only for ME SECAM
2360	4822 126 13123	68	pF		only for ME SECAM
2369	4822 126 12768	47	nF		
2370	4822 124 40246	4,7	µF	63V	
2372	4822 126 12768	47	nF		
2374	4822 124 40756	1	µF	100V	
2376	4822 124 23053	1	µF	63V	
2378	4822 126 12768	47	nF		
2390	4822 122 33177	10	nF	50V	
2391	4822 126 13169	15	pF		
2392	4822 122 33342	33	nF	63V	
2393	5322 126 10511	1	nF	50V	
2395	4822 124 40756	1	µF	100V	
2396	5322 122 32481	15	pF	50V	
2397	5322 126 10511	1	nF	50V	
2398	5322 126 10511	1	nF	50V	
2399	4822 122 33177	10	nF	50V	
2408	5322 122 32448	10	pF	50V	
2410	4822 122 33177	10	nF	50V	
2411	4822 124 40433	47	µF	25V	
2412	4822 124 40433	47	µF	25V	
2414	4822 122 33515	82	pF	63V	
2480	4822 124 41579	10	µF	50V	
2484	4822 124 22826	10	µF	16V	
2486	4822 122 33177	10	nF	50V	
2487	4822 126 12768	47	nF		
2488	4822 126 12768	47	nF		
2489	4822 126 12768	47	nF		
2490	4822 122 33175	2,2	nF	50V	
2494	4822 124 22826	10	µF	16V	
2500	4822 124 40246	4,7	µF	63V	
2501	4822 124 40246	4,7	µF	63V	
2502	4822 124 41584	100	µF	10V	
2503	4822 126 13176	100	nF	25V	
2504	5322 126 12769	1	nF		
2505	5322 122 33538	150	pF	63V	
2508	4822 122 33177	10	nF	50V	
2518	4822 122 33177	10	nF	50V	
2522	4822 126 13176	100	nF	25V	
2524	4822 122 33177	10	nF	50V	
2525	5322 122 32654	22	nF	63V	
2526	5322 122 32448	10	pF	50V	
2530	4822 122 33177	10	nF	50V	
2537	4822 122 33177	10	nF	50V	
2540	4822 124 40756	1	µF	100V	
2542	4822 122 33177	10	nF	50V	
2543	4822 124 41584	100	µF	10V	
2545	4822 122 33177	10	nF	50V	
2552	5322 122 32659	33	pF	50V	
2560	4822 126 13737	680	pF	63V	
2562	4822 122 33515	82	pF	63V	
2564	4822 122 33177	10	nF	50V	
2566	4822 122 33177	10	nF	50V	
2572	4822 122 33342	33	nF	63V	
2576	4822 122 33177	10	nF	50V	
2580	4822 124 23053	1	µF	63V	
2590	5322 122 31866	6,8	nF	63V	
2591	4822 124 11569	4,7	µF	25V	
2592	4822 124 40756	1	µF	100V	
2594	4822 124 41579	10	µF	50V	
2606	5322 124 41431	22	µF	35V	
2610	5322 124 41431	22	µF	35V	
2612	5322 124 41431	22	µF	35V	
2613	4822 122 33342	33	nF	63V	
2614	4822 122 33177	10	nF	50V	
2615	4822 124 41579	10	µF	50V	
2624	4822 122 33177	10	nF	50V	
2654	4822 122 33177	10	nF	50V	
2662	4822 124 41579	10	µF	50V	
2666	4822 124 80874	47	µF	50V	
2680	4822 124 80874	47	µF	50V	
2682	4822 124 22826	10	µF	16V	
2690	4822 122 33177	10	nF	50V	
2692	4822 122 33177	10	nF	50V	
2700	4822 122 33177	10	nF	50V	
2706	4822 126 13291	270	pF		
2708	4822 126 13291	270	pF		
2712	4822 126 13695	82	pF	63V	
2713	4822 124 80229	22	µF	16V	
2714	4822 122 33575	220	pF	50V	
2716	4822 126 13291	270	pF		
2717	4822 124 40246	4,7	µF	63V	
2718	4822 124 40246	4,7	µF	63V	
2720	4822 124 11569	4,7	µF	25V	
2722	5322 126 10511	1	nF	50V	
2723	4822 122 33342	33	nF	63V	
2724	4822 124 40756	1	µF	100V	
2725	4822 124 41584	100	µF	10V	
2726	5322 122 32661	56	pF	50V	
2727	4822 122 33342	33	nF	63V	
2730	4822 124 41579	10	µF	50V	
2758	4822 122 33172	390	pF	50V	
2760	5322 122 33538	150	pF	63V	
2762	4822 122 33515	82	pF	63V	
2764	5322 122 31873	2,7	pF	100V	
2766	4822 124 80874	47	µF	50V	
2767	4822 126 13176	100	nF	25V	
2768	5322 122 32481	15	pF	50V	
2769	5322 122 33538	150	pF	63V	
2770	4822 122 33515	82	pF	63V	
2771	4822 122 33172	390	pF	50V	
2772	5322 122 32481	15	pF	50V	
2774	5322 122 32481	15	pF	50V	
2792	4822 122 33177	10	nF	50V	
2796	4822 122 33177	10	nF	50V	
2800	4822 122 33177	10	nF	50V	
2806	4822 122 33177	10	nF	50V	
2810	4822 122 33177	10	nF	50V	
2812	5322 124 41431	22	µF	35V	
2814	4822 124 80229	22	µF	16V	
2816	5322 124 41431	22	µF	35V	
2818	5322 124 41431	22	µF	35V	
2820	4822 124 80229	22	µF	16V	
2822	4822 124 80229	22	µF	16V	
2823	5322 122 33538	150	pF	63V	
2824	5322 122 33538	150	pF	63V	
2825	5322 126 10511	1	nF	50V	
2826	5322 126 10511	1	nF	50V	
2827	5322 126 10511	1	nF	50V	only for SECAM L
2830	5322 122 33538	150	pF	63V	only for SECAM L
2832	5322 122 32531	100	pF	50V	only for SECAM L
2834	5322 122 33538	150	pF	63V	only for SECAM L
2836	4822 124 41509	33	µF	35V	only for SECAM L
2838	4822 122 33177	10	nF	50V	only for SECAM L
2840	5322 122 33861	120	pF	50V	only for SECAM L
2842	5322 122 32658	22	pF	50V	only for SECAM L
2844	4822 122 33177	10	nF	50V	only for SECAM L
2846	4822 124 41579	10	µF	50V	only for SECAM L
2848	4822 124 41579	10	µF	50V	only for SECAM L
2850	4822 122 33177	10	nF	50V	only for SECAM L
2851	4822 122 33514	68	pF	50V	only for SECAM L
2852	5322 122 32287	4,7	pF	50V	only for SECAM L
2853	5322 122 32966	39	pF	50V	only for SECAM L
2854	5322 122 32966	39	pF	50V	only for SECAM L
2855	4822 124 40756	1	µF	100V	only for SECAM L
2856	5322 126 10511	1	nF	50V	only for SECAM L
2857	4822 122 33177	10	nF	50V	only for SECAM L
2858	4822 122 33342	33	nF	63V	only for SECAM L
2859	4822 122 33514	68	pF	50V	only for SECAM L
2860	5322 122 32966	39	pF	50V	only for SECAM L
2861	5322 122 32966	39	pF	50V	only for SECAM L
2862	5322 122 32287	4,7	pF	50V	only for SECAM L
2863	4822 122 33177	10	nF	50V	only for SECAM L
2864	4822 124 41509	33	µF	35V	only for SECAM L
2865	4822 122 33177	10	nF	50V	only for SECAM L
2866	5322 122 33861	120	pF	50V	only for SECAM L
2867	5322 122 32658	22	pF	50V	only for SECAM L

⚠ ... Safety component, use only this type

S-VHS Board & Transcoder Board

2868	4822 122 33177	10	nF	50V only for SECAM L
2869	4822 124 40756	1	µF	100V only for SECAM L
2870	4822 124 40756	1	µF	100V only for SECAM L
2871	5322 126 10223	4,7	nF	63V only for SECAM L
2872	5322 126 10511	1	nF	50V only for SECAM L
2873	5322 122 32659	33	pF	50V only for SECAM L
2874	4822 124 23053	1	µF	63V only for SECAM L
2876	4822 124 41509	33	µF	35V only for SECAM L
2878	4822 122 33177	10	nF	50V only for SECAM L
2880	4822 122 33575	220	pF	50V only for SECAM L
2890	4822 122 33575	220	pF	50V only for SECAM L
2896	4822 122 33514	68	pF	50V only for SECAM L
2898	4822 122 33514	68	pF	50V only for SECAM L
2912	5322 126 10511	1	nF	50V only for SECAM L
2914	5322 126 10511	1	nF	50V only for SECAM L
2916	4822 126 13695	82	pF	63V only for SECAM L
2918	5322 126 10184	680	pF	only for SECAM L
2920	4822 124 41579	10	µF	50V only for SECAM L
2934	4822 126 13176	100	nF	25V only for SECAM L
2940	4822 126 13176	100	nF	25V only for SECAM L
2946	4822 126 13176	100	nF	25V only for SECAM L
2951	4822 124 40756	1	µF	100V only for SECAM L
2952	5322 126 10511	1	nF	50V only for SECAM L
2953	4822 124 40756	1	µF	100V only for SECAM L
2954	5322 126 10511	1	nF	50V only for SECAM L
2955	4822 124 40756	1	µF	100V only for SECAM L
2956	5322 126 10511	1	nF	50V only for SECAM L
2957	4822 126 13176	100	nF	25V only for SECAM L
2958	4822 122 33342	33	nF	63V only for SECAM L
2959	4822 126 13176	100	nF	25V only for SECAM L
2960	4822 124 41509	33	µF	35V only for SECAM L
2961	4822 122 33342	33	nF	63V only for SECAM L
2962	4822 122 33177	10	nF	50V only for SECAM L
2963	5322 122 33861	120	pF	50V only for SECAM L
2968	4822 122 33177	10	nF	50V only for SECAM L
2970	4822 122 33177	10	nF	50V only for SECAM L
2975	4822 125 50355	10		50V only for SECAM L
2976	5322 122 33244	8,2	pF	50V only for SECAM L
2977	4822 126 10326	180	pF	63V only for SECAM L
2978	5322 122 32268	470	pF	50V only for SECAM L
2979	4822 122 33342	33	nF	63V only for SECAM L
2980	5322 126 10511	1	nF	50V only for SECAM L
2981	5322 122 32531	100	pF	50V only for SECAM L
2995	4822 124 41509	33	µF	35V only for SECAM L

RESISTORS

3002	4822 051 10102	1	k	0,25W
3004	4822 051 10102	1	k	0,25W
3005	4822 051 20101	100	R	0,1W
3006	4822 051 10102	1	k	0,25W
3008	4822 051 20471	470	R	0,1W
3009	4822 051 20104	100	k	0,1W
3032	4822 051 20471	470	R	0,1W
3034	4822 051 20471	470	R	0,1W
3040	4822 051 20101	100	R	0,1W
3041	4822 051 10102	1	k	0,25W
3042	4822 051 10102	1	k	0,25W
3043	4822 051 20101	100	R	0,1W
3044	4822 051 10102	1	k	0,25W
3045	4822 051 20101	100	R	0,1W
3046	4822 051 20101	100	R	0,1W only for TXT
3048	4822 051 10102	1	k	0,25W only for TXT
3056	4822 051 20471	470	R	0,1W
3058	4822 051 20471	470	R	0,1W
3060	4822 051 10102	1	k	0,25W
3062	4822 051 10102	1	k	0,25W
3064	4822 051 20101	100	R	0,1W
3066	4822 051 10102	1	k	0,25W
3069	4822 051 20682	6,8	k	0,1W only for ME SECAM
3072	4822 051 20008	0	R	0,1W only for PAL
3079	4822 051 20221	220	R	0,1W only for SECAM L
3080	4822 051 10102	1	k	0,25W only for SECAM L
3082	4822 051 10102	1	k	0,25W only for SECAM L
3084	4822 051 20472	4,7	k	0,1W only for SECAM L
3086	4822 117 11449	2,2	k	0,1W only for SECAM L
3094	4822 051 20561	560	R	0,1W only for SECAM L
3096	4822 051 20221	220	R	0,1W only for SECAM L
3098	4822 117 11449	2,2	k	0,1W only for SECAM L
3102	4822 051 20221	220	R	0,1W only for SECAM L
3104	4822 051 20221	220	R	0,1W only for SECAM L
3106	4822 051 20471	470	R	0,1W only for SECAM L
3108	4822 051 10102	1	k	0,25W only for SECAM L
3110	4822 051 20008	0	R	0,1W only for PAL-TXT
3112	4822 117 10833	10	k	0,1W only for SEC-TXT
3113	4822 117 10833	10	k	0,1W only for SEC-TXT
3115	4822 051 20008	0	R	only for PAL-TXT
3166	4822 051 20472	4,7	k	0,1W
3167	4822 101 11276	1	k	
3168	4822 051 20393	39	k	0,1W only for ME SECAM
3170	4822 051 20104	100	k	0,1W only for ME SECAM
3172	4822 051 20153	15	k	0,1W
3174	4822 051 20183	18	k	0,1W
3176	4822 051 10102	1	k	0,25W
3178	4822 051 20331	330	R	0,1W
3180	4822 051 10102	1	k	0,25W
3182	4822 051 20102	1	k	0,1W
3184	4822 051 10102	1	k	0,25W
3186	4822 051 20102	1	k	0,1W
3188	4822 051 20122	1,2	k	0,1W
3190	4822 051 20122	1,2	k	0,1W
3192	4822 051 10102	1	k	0,25W
3194	4822 051 20104	100	k	0,1W
3196	4822 051 20124	120	k	0,1W
3198	4822 117 10833	10	k	0,1W
3200	4822 051 20223	22	k	0,1W
3202	4822 051 20223	22	k	0,1W
3204	4822 051 20333	33	k	0,1W
3206	4822 051 20472	4,7	k	0,1W
3208	4822 051 20223	22	k	0,1W
3210	4822 051 20621	620	R	0,1W
3212	4822 051 20681	680	R	0,1W
3214	4822 051 20122	1,2	k	0,1W
3216	4822 051 20332	3,3	k	0,1W
3218	4822 117 11139	1,5	k	0,1W
3220	4822 117 11449	2,2	k	0,1W
3222	4822 051 20223	22	k	0,1W
3224	4822 051 20472	4,7	k	0,1W
3226	4822 051 20821	820	R	0,1W
3228	4822 051 10102	1	k	0,25W
3230	4822 051 20333	33	k	0,1W
3232	4822 051 20223	22	k	0,1W
3234	4822 051 10102	1	k	0,25W
3236	4822 051 20562	5,6	k	0,1W
3238	4822 051 20472	4,7	k	0,1W
3240	4822 117 11139	1,5	k	0,1W
3242	4822 051 20473	47	k	0,1W
3244	4822 051 20333	33	k	0,1W
3246	4822 051 20331	330	R	0,1W
3248	4822 051 20824	820	k	0,1W
3250	4822 051 20223	22	k	0,1W
3252	4822 051 20223	22	k	0,1W
3254	4822 051 20331	330	R	0,1W
3256	4822 051 10102	1	k	0,25W
3258	4822 051 10102	1	k	0,25W
3260	4822 051 20391	390	R	0,1W
3262	4822 051 20561	560	R	0,1W
3264	4822 051 10102	1	k	0,25W
3266	4822 051 20182	1,8	k	0,1W
3268	4822 051 20272	2,7	k	0,1W
3272	4822 051 10102	1	k	0,25W
3273	4822 101 11276	1	k	
3274	4822 117 10833	10	k	0,1W
3276	4822 051 20101	100	R	0,1W
3280	4822 051 20223	22	k	0,1W
3282	4822 117 10833	10	k	0,1W
3284	4822 117 11383	12	k	0,1W
3286	4822 117 11449	2,2	k	0,1W
3288	4822 051 20223	22	k	0,1W
3290	4822 051 20822	8,2	k	0,1W
3292	4822 051 20562	5,6	k	0,1W
3294	4822 051 20473	47	k	0,1W
3295	4822 101 11283	100	k	
3296	4822 051 20272	2,7	k	0,1W
3298	4822 051 20563	56	k	0,1W
3300	4822 051 20822	8,2	k	0,1W
3302	4822 051 20182	1,8	k	0,1W
3306	4822 051 20563	56	k	0,1W
3308	4822 117 11449	2,2	k	0,1W
3310	4822 117 10833	10	k	0,1W
3312	4822 051 10102	1	k	0,25W

S-VHS Board & Transcoder Board

3314	4822 051 10102	1	k	0,25W	
3321	4822 117 11449	2,2	k	0,1W	
3324	4822 117 11449	2,2	k	0,1W	only for ME SECAM
3326	4822 117 11449	2,2	k	0,1W	only for ME SECAM
3327	4822 051 20122	1,2	k	0,1W	
3328	4822 051 20472	4,7	k	0,1W	only for ME SECAM
3330	4822 117 11449	2,2	k	0,1W	only for ME SECAM
3332	4822 051 20392	3,9	k	0,1W	only for ME SECAM
3334	4822 051 20562	5,6	k	0,1W	only for ME SECAM
3336	4822 051 20182	1,8	k	0,1W	only for ME SECAM
3346	4822 051 20153	15	k	0,1W	only for SECAM
3348	4822 051 20154	150	k	0,1W	only for SECAM
3350	4822 051 20681	680	R	0,1W	only for ME SECAM
3352	4822 051 20472	4,7	k	0,1W	only for ME SECAM
3354	4822 051 20472	4,7	k	0,1W	only for ME SECAM
3356	4822 117 11101	100	k		only for ME SECAM
3358	4822 051 20472	4,7	k	0,1W	only for ME SECAM
3362	4822 051 20154	150	k	0,1W	only for ME SECAM
3370	4822 051 20473	47	k	0,1W	
3372	4822 051 20473	47	k	0,1W	
3374	4822 051 20472	4,7	k	0,1W	
3376	4822 051 20472	4,7	k	0,1W	
3380	4822 051 20224	220	k	0,1W	
3382	4822 051 20104	100	k	0,1W	
3384	4822 051 20473	47	k	0,1W	
3390	4822 117 10759	4,7	k		
3392	4822 051 20391	390	R	0,1W	
3394	4822 051 20471	470	R	0,1W	
3395	4822 051 20471	470	R	0,1W	
3396	4822 117 11449	2,2	k	0,1W	
3398	4822 051 20473	47	k	0,1W	
3400	4822 051 20183	18	k	0,1W	
3402	4822 117 11449	2,2	k	0,1W	
3404	4822 051 10102	1	k	0,25W	
3406	4822 051 10102	1	k	0,25W	
3408	4822 117 11449	2,2	k	0,1W	
3410	4822 051 20224	220	k	0,1W	
3411	4822 051 20472	4,7	k	0,1W	
3412	4822 051 20472	4,7	k	0,1W	
3480	4822 051 20101	100	R	0,1W	
3482	4822 051 10102	1	k	0,25W	
3484	4822 051 20225	2,2	M	0,1W	
3486	4822 117 11449	2,2	k	0,1W	
3487	4822 101 11278	4,7	k		
3488	4822 117 11449	2,2	k	0,1W	
3490	4822 051 20273	27	k	0,1W	
3500	4822 117 12332	220, 2		R	
3502	4822 117 12333	910, 2		R	
3503	4822 101 11278	4,7	k		
3504	4822 051 20682	6,8	k	0,1W	
3506	4822 117 11449	2,2	k	0,1W	
3507	4822 101 11277	2,2	k		
3508	4822 051 20332	3,3	k	0,1W	
3509	4822 101 11278	4,7	k		
3512	4822 051 10102	1	k	0,25W	
3513	4822 101 11277	2,2	k		
3514	4822 051 20682	6,8	k	0,1W	
3515	4822 101 11279	10	k		
3516	4822 051 20472	4,7	k	0,1W	
3518	4822 051 20184	180	k	0,1W	
3520	4822 051 20472	4,7	k	0,1W	
3521	4822 101 11279	10	k		
3522	4822 051 20682	6,8	k	0,1W	
3526	4822 051 10102	1	k	0,25W	
3534	4822 051 10102	1	k	0,25W	
3536	4822 051 20101	100	R	0,1W	
3540	4822 051 20472	4,7	k	0,1W	
3542	4822 051 10102	1	k	0,25W	
3543	4822 101 11276	1	k		
3545	4822 101 11276	1	k		
3548	4822 051 10102	1	k	0,25W	
3552	4822 051 20332	3,3	k	0,1W	
3554	4822 051 20683	68	k	0,1W	
3558	4822 051 20682	6,8	k	0,1W	
3560	4822 117 12334	390, 2		R	
3562	4822 117 11139	1,5	k	0,1W	
3564	4822 051 10102	1	k	0,25W	
3566	4822 117 10833	10	k	0,1W	
3568	4822 117 10833	10	k	0,1W	
3570	4822 051 20183	18	k	0,1W	
3572	4822 117 10833	10	k	0,1W	
3574	4822 051 20682	6,8	k	0,1W	
3580	4822 051 10102	1	k	0,25W	
3582	4822 051 10102	1	k	0,25W	
3583	4822 101 11282	47	k		only for SECAM L
3585	4822 117 10833	10	k	0,1W	
3586	4822 051 20184	180	k	0,1W	
3588	4822 051 10102	1	k	0,25W	
3590	4822 051 20184	180	k	0,1W	
3592	4822 051 20104	100	k	0,1W	
3594	4822 051 10102	1	k	0,25W	
3596	4822 051 20104	100	k	0,1W	
3598	4822 051 10102	1	k	0,25W	
3600	4822 051 20621	620	R	0,1W	
3602	4822 051 20101	100	R	0,1W	
3604	4822 051 20681	680	R	0,1W	
3606	4822 051 20472	4,7	k	0,1W	
3608	4822 051 20008	0	R	0,1W	
3610	4822 051 20221	220	R	0,1W	
3612	4822 117 10833	10	k	0,1W	
3614	4822 117 10833	10	k	0,1W	
3616	4822 051 20472	4,7	k	0,1W	
3618	4822 051 20101	100	R	0,1W	
3620	4822 051 20472	4,7	k	0,1W	
3622	4822 051 20471	470	R	0,1W	
3624	4822 051 10102	1	k	0,25W	
3626	4822 051 20471	470	R	0,1W	
3628	4822 051 20471	470	R	0,1W	
3630	4822 051 20471	470	R	0,1W	
3633	4822 051 20472	4,7	k	0,1W	
3634	4822 051 20101	100	R	0,1W	
3636	4822 051 10102	1	k	0,25W	
3637	4822 101 11276	1	k		
3638	4822 051 10102	1	k	0,25W	
3640	4822 051 10102	1	k	0,25W	
3642	4822 051 10102	1	k	0,25W	
3643	4822 051 10102	1	k	0,25W	
3644	4822 051 10102	1	k	0,25W	
3650	4822 117 10833	10	k	0,1W	
3652	4822 117 10833	10	k	0,1W	
3654	4822 051 20472	4,7	k	0,1W	
3656	4822 051 20101	100	R	0,1W	
3658	4822 051 20472	4,7	k	0,1W	
3660	4822 051 20471	470	R	0,1W	
3662	4822 051 20473	47	k	0,1W	
3664	4822 051 20471	470	R	0,1W	
3666	4822 051 20472	4,7	k	0,1W	
3668	4822 051 20473	47	k	0,1W	
3670	4822 051 20471	470	R	0,1W	
3672	4822 051 20471	470	R	0,1W	
3674	4822 051 20101	100	R	0,1W	
3675	4822 117 11449	2,2	k	0,1W	
3678	4822 051 20101	100	R	0,1W	
3680	4822 051 20333	33	k	0,1W	
3681	4822 051 20101	100	R	0,1W	
3682	4822 117 10833	10	k	0,1W	
3684	4822 051 20101	100	R	0,1W	
3685	4822 051 10102	1	k	0,25W	
3686	4822 051 20221	220	R	0,1W	
3688	4822 051 20221	220	R	0,1W	
3690	4822 051 20472	4,7	k	0,1W	
3692	4822 051 20472	4,7	k	0,1W	
3700	4822 117 11449	2,2	k	0,1W	
3702	4822 051 20561	560	R	0,1W	
3704	4822 051 10102	1	k	0,25W	
3706	4822 117 11089	3,3	k		
3708	4822 117 11089	3,3	k		
3710	4822 051 20471	470	R	0,1W	
3712	4822 051 20102	1	k	0,1W	
3714	4822 117 11139	1,5	k	0,1W	
3716	4822 051 20102	1	k	0,1W	
3720	4822 051 20105	1	M	0,1W	
3722	4822 051 20271	270	R	0,1W	
3723	4822 101 11276	1	k		
3724	4822 051 10102	1	k	0,25W	
3726	4822 117 10833	10	k	0,1W	
3728	4822 051 20471	470	R	0,1W	
3730	4822 051 20104	100	k	0,1W	
3732	4822 051 20105	1	M	0,1W	
3734	4822 051 20472	4,7	k	0,1W	
3736	4822 051 10102	1	k	0,25W	
3738	4822 051 20471	470	R	0,1W	

⚠ ... Safety component, use only this type

S-VHS Board & Transcoder Board

3740	4822 051 20182	1,8	k	0,1W	
3742	4822 051 10102	1	k	0,25W	
3746	4822 051 20471	470	R	0,1W	
3749	4822 051 20101	100	R	0,1W	
3750	4822 051 20392	3,9	k	0,1W	
3752	4822 051 20182	1,8	k	0,1W	
3754	4822 051 20272	2,7	k	0,1W	
3757	4822 051 20184	180	k	0,1W	
3760	4822 051 20471	470	R	0,1W	
3762	4822 117 11449	2,2	k	0,1W	
3765	4822 101 11275	220	R		
3766	4822 051 10102	1	k	0,25W	
3768	4822 051 20272	2,7	k	0,1W	
3770	4822 051 10102	1	k	0,25W	
3772	4822 051 20272	2,7	k	0,1W	
3774	4822 051 20101	100	R	0,1W	
3780	4822 051 20472	4,7	k	0,1W	
3782	4822 117 11449	2,2	k	0,1W	
3790	4822 051 20104	100	k	0,1W	
3791	4822 101 11283	100	k		
3792	4822 051 20104	100	k	0,1W	
3794	4822 051 20154	150	k	0,1W	
3795	4822 101 11283	100	k		
3796	4822 051 20473	47	k	0,1W	
3800	4822 051 20224	220	k	0,1W	
3806	4822 051 20224	220	k	0,1W	
3807	4822 051 10102	1	k	0,25W	
3808	4822 051 10102	1	k	0,25W	
3809	4822 051 20472	4,7	k	0,1W	
3810	4822 051 20221	220	R	0,1W	
3811	4822 051 10102	1	k	0,25W	
3812	4822 051 20471	470	R	0,1W	only for SECAM L
3813	4822 051 20472	4,7	k	0,1W	only for SECAM L
3814	4822 051 20472	4,7	k	0,1W	only for SECAM L
3830	4822 051 10102	1	k	0,25W	only for SECAM L
3832	4822 051 20332	3,3	k	0,1W	only for SECAM L
3840	4822 051 20471	470	R	0,1W	only for SECAM L
3846	4822 051 20105	1	M	0,1W	only for SECAM L
3848	4822 051 20273	27	k	0,1W	only for SECAM L
3849	4822 101 11279	10	k		only for SECAM L
3850	4822 051 20225	2,2	M	0,1W	only for SECAM L
3851	4822 051 20471	470	R	0,1W	only for SECAM L
3854	4822 051 20471	470	R	0,1W	only for SECAM L
3859	4822 117 11449	2,2	k	0,1W	only for SECAM L
3860	4822 051 20471	470	R	0,1W	only for SECAM L
3863	4822 051 20471	470	R	0,1W	only for SECAM L
3866	4822 051 20471	470	R	0,1W	only for SECAM L
3869	4822 051 20474	470	k	0,1W	only for SECAM L
3872	4822 051 20472	4,7	k	0,1W	only for SECAM L
3874	4822 051 20104	100	k	0,1W	only for SECAM L
3878	4822 051 20223	22	k	0,1W	only for SECAM L
3880	4822 117 11449	2,2	k	0,1W	only for SECAM L
3881	4822 051 20101	100	R	0,1W	only for SECAM L
3882	4822 051 20562	5,6	k	0,1W	only for SECAM L
3883	4822 051 20471	470	R	0,1W	only for SECAM L
3884	4822 051 10102	1	k	0,25W	only for SECAM L
3885	4822 117 11383	12	k	0,1W	only for SECAM L
3886	4822 051 10102	1	k	0,25W	only for SECAM L
3888	4822 051 20562	5,6	k	0,1W	only for SECAM L
3890	4822 117 11449	2,2	k	0,1W	only for SECAM L
3892	4822 117 10833	10	k	0,1W	only for SECAM L
3894	4822 117 10833	10	k	0,1W	only for SECAM L
3895	4822 101 11279	10	k		only for SECAM L
3896	4822 051 10102	1	k	0,25W	only for SECAM L
3897	4822 101 11279	10	k		only for SECAM L
3900	4822 051 10102	1	k	0,25W	only for SECAM L
3902	4822 117 10833	10	k	0,1W	only for SECAM L
3904	4822 117 10833	10	k	0,1W	only for SECAM L
3906	4822 051 20472	4,7	k	0,1W	only for SECAM L
3908	4822 051 20223	22	k	0,1W	only for SECAM L
3910	4822 117 10833	10	k	0,1W	only for SECAM L
3912	4822 117 11449	2,2	k	0,1W	only for SECAM L
3914	4822 117 11449	2,2	k	0,1W	only for SECAM L
3916	4822 117 12592	82k			only for SECAM L
3918	4822 051 20473	47	k	0,1W	only for SECAM L
3919	4822 101 11282	47	k		only for SECAM L
3930	4822 051 20154	150	k	0,1W	only for SECAM L
3932	4822 051 20394	390	k	0,1W	only for SECAM L
3934	4822 051 20472	4,7	k	0,1W	only for SECAM L
3936	4822 051 20394	390	k	0,1W	only for SECAM L
3938	4822 051 20154	150	k	0,1W	only for SECAM L
3940	4822 051 20472	4,7	k	0,1W	only for SECAM L
3942	4822 051 20394	390	k	0,1W	only for SECAM L
3944	4822 051 20154	150	k	0,1W	only for SECAM L
3946	4822 051 20472	4,7	k	0,1W	only for SECAM L
3948	4822 051 20223	22	k	0,1W	only for SECAM L
3950	4822 051 20392	3,9	k	0,1W	only for SECAM L
3952	4822 117 11449	2,2	k	0,1W	only for SECAM L
3954	4822 117 11449	2,2	k	0,1W	only for SECAM L
3956	4822 117 11449	2,2	k	0,1W	only for SECAM L
3957	4822 101 11279	10	k		only for SECAM L
3958	4822 051 20225	2,2	M	0,1W	only for SECAM L
3959	4822 101 11279	10	k		only for SECAM L
3960	4822 051 20225	2,2	M	0,1W	only for SECAM L
3962	4822 051 10102	1	k	0,25W	only for SECAM L
3964	4822 117 11449	2,2	k	0,1W	only for SECAM L
3966	4822 051 10102	1	k	0,25W	only for SECAM L
3968	4822 051 10102	1	k	0,25W	only for SECAM L
3970	4822 051 20471	470	R	0,1W	only for SECAM L
3972	4822 051 20471	470	R	0,1W	only for SECAM L
3974	4822 117 10833	10	k	0,1W	only for SECAM L
3975	4822 051 20101	100	R	0,1W	only for SECAM L
3976	4822 117 11383	12	k	0,1W	only for SECAM L
3978	4822 051 20471	470	R	0,1W	only for SECAM L
3998	4822 051 20472	4,7	k	0,1W	only for SECAM L
3999	4822 051 20472	4,7	k	0,1W	only for SECAM L

COILS

5010	4822 157 70676	33µH
5011	4822 157 52842	15 µH
5094	4822 157 52842	15 µH only for SECAM L
5106	4822 157 52842	15 µH only for SECAM L
5140	4822 157 70676	33µH
5176	4822 157 71456	150 µH 5%
5200	4822 157 70676	33 µH
5238	4822 157 71243	100 µH 10%
5277	4822 157 71684	4.7 µH 10%
5302	4822 157 62768	47 µH 5%
5334	4822 157 63343	10µH 5% only for ME SECAM
5348	4822 157 63343	10µH 5% only for SECAM
5349	4822 157 70676	33 µH
5350	4822 157 70676	33 µH
5552	4822 157 10623	270µH 5%
5758	4822 157 71456	150µH 5%
5760	4822 157 53252	22 µH
5769	4822 157 71456	150µH 5%
5771	4822 157 71456	150µH 5%
5774	4822 157 70402	33UH
5782	4822 157 70676	33µH
5798	4822 157 70676	33µH
5800	4822 157 10624	82µH 10%
5802	4822 157 10624	82µH 10%
5803	4822 157 10623	270µH 5%
5804	4822 157 10625	470µH 5%
5852	4822 157 53252	22 µH
5862	4822 157 53252	22 µH
5863	4822 157 70299	2U2 only for SECAM L
5864	4822 157 70676	33µH only for SECAM L
5876	4822 157 70676	33µH only for SECAM L
5960	4822 157 70676	33µH only for SECAM L
5964	4822 157 63343	10µH 5% only for SECAM L
5995	4822 157 70676	33µH only for SECAM L

DIODES

6069	4822 130 30621	1N4148 only for ME SECAM
6244	4822 130 80888	BA682
6250	4822 130 80888	BA682
6660	5322 130 31928	BAS16
6664	5322 130 31928	BAS16
6979	4822 130 80888	BA682 only for SECAM L

TRANSISTORS & IC's

7010	4822 209 12998	SAA4961/V2/S1
7026	5322 130 41982	BC848B only for ME SECAM
7030	4822 209 60327	NJM2234M
7040	4822 209 33306	BA7604N

⚠ ... Safety component, use only this type

S-VHS Board & Transcoder Board

7042	5322 130 41983	BC858B
7043	5322 130 41983	BC858B
7046	5322 130 41983	BC858B only for TXT
7050	4822 209 33306	BA7604N
7060	4822 209 32327	BA7605N
7062	5322 130 41983	BC858B
7066	5322 130 41983	BC858B
7070	4822 209 60327	NJM2234M only for SECAM L
7080	5322 209 11306	HEF4094BT PHIN
7082	5322 130 41983	BC858B only for SECAM L
7092	5322 130 41982	BC848B only for SECAM L
7098	5322 130 41983	BC858B only for SECAM L
7102	5322 130 41982	BC848B only for SECAM L
7108	5322 130 41983	BC858B only for SECAM L
7110	5322 130 41983	BC858B only for SEC-TXT
7111	5322 130 41983	BC858B only for SEC-TXT
7166	5322 130 41983	BC858B
7175	4822 209 32495	CXL5508M-T4
7176	5322 130 41982	BC848B
7182	5322 130 41983	BC858B
7190	5322 130 41982	BC848B
7192	5322 130 41982	BC848B
7196	5322 130 41982	BC848B
7200	4822 209 32942	M52063FP
7220	5322 130 41982	BC848B
7224	5322 130 41982	BC848B
7234	5322 130 41982	BC848B
7250	5322 130 41982	BC848B
7254	5322 130 41982	BC848B
7268	4822 130 63563	BCR133
7270	4822 209 33311	M52062AFP
7280	5322 130 41982	BC848B
7306	5322 130 41983	BC858B
7312	5322 130 41983	BC858B
7326	5322 130 41982	BC848B only for ME SECAM
7332	5322 130 41982	BC848B only for ME SECAM
7348	5322 130 41982	BC848B only for SECAM
7352	5322 130 41983	BC858B only for ME SECAM
7354	5322 130 41983	BC858B only for ME SECAM
7360	5322 130 41983	BC858B only for ME SECAM
7362	4822 130 63563	BCR133 only for ME SECAM
7374	5322 130 41983	BC858B
7376	5322 130 41982	BC848B
7380	5322 130 41982	BC848B
7382	5322 130 41983	BC858B
7390	4822 209 33315	NJM2228M
7398	5322 130 41982	BC848B
7402	5322 130 41982	BC848B
7406	5322 130 41982	BC848B
7410	5322 209 11306	HEF4094BT PHIN
7411	4822 130 42655	BC808-40
7508	4822 130 63563	BCR133
7518	4822 130 83419	BCR183
7520	4822 209 33308	AN3255NFAP
7530	4822 130 63619	BCR148
7545	5322 130 41983	BC858B
7546	4822 130 63563	BCR133
7552	4822 130 63563	BCR133
7562	4822 130 83419	BCR183
7566	4822 130 63563	BCR133
7585	4822 130 63563	BCR133
7588	5322 130 41983	BC858B
7598	5322 130 41982	BC848B
7606	5322 130 41983	BC858B
7608	5322 130 41983	BC858B
7612	5322 130 41983	BC858B
7615	4822 209 32938	BA7612N
7618	5322 130 41983	BC858B
7622	5322 130 42718	BFS20
7628	5322 130 41982	BC848B
7630	5322 130 41982	BC848B
7632	5322 130 42718	BFS20
7634	5322 130 41983	BC858B
7636	5322 130 41983	BC858B
7654	5322 130 41983	BC858B
7656	5322 130 41983	BC858B
7662	5322 130 42718	BFS20
7664	5322 130 42718	BFS20
7670	5322 130 41982	BC848B
7672	5322 130 41982	BC848B
7674	5322 130 41983	BC858B
7678	5322 130 41982	BC848B
7680	5322 130 41983	BC858B
7684	5322 130 41983	BC858B
7686	5322 130 41983	BC858B
7688	5322 130 41983	BC858B
7689	5322 130 41982	BC848B
7690	5322 130 41982	BC848B
7700	4822 209 33309	AN3293S(-E2)
7702	5322 130 41983	BC858B
7713	4822 130 63619	BCR148
7715	4822 130 63619	BCR148
7717	4822 130 63619	BCR148
7722	5322 130 42718	BFS20
7725	4822 209 32495	CXL5508M-T4
7728	5322 130 41982	BC848B
7734	5322 130 41983	BC858B
7738	5322 130 41982	BC848B
7742	5322 130 41983	BC858B
7744	5322 130 41982	BC848B
7762	4822 130 63619	BCR148
7764	5322 130 42718	BFS20
7766	5322 130 41982	BC848B
7768	5322 130 42718	BFS20
7770	4822 130 63619	BCR148
7782	4822 130 42655	BC808-40
7800	5322 209 11306	HEF4094BT PHIN
7806	5322 209 11306	HEF4094BT PHIN
7807	5322 130 41982	BC848B
7808	5322 130 41982	BC848B
7809	5322 130 44336	BSV52 only for SECAM L
7810	4822 209 33307	BA7602F-E2
7811	5322 130 41982	BC848B only for SECAM L
7856	4822 209 33313	CXA1227Q only for SECAM L
7858	4822 209 15088	CXL5506M-T4 only for SECAM L
7860	5322 130 41983	BC858B only for SECAM L
7880	5322 130 44336	BSV52 only for SECAM L
7890	5322 130 44336	BSV52 only for SECAM L
7896	5322 130 41983	BC858B only for SECAM L
7900	5322 130 41983	BC858B only for SECAM L
7906	5322 130 41983	BC858B only for SECAM L
7912	4822 130 42616	BC818-40 only for SECAM L
7914	4822 130 42616	BC818-40 only for SECAM L
7920	5322 209 11261	HEF4538BT only for SECAM L
7934	5322 130 41983	BC858B only for SECAM L
7940	5322 130 41983	BC858B only for SECAM L
7946	5322 130 41983	BC858B only for SECAM L
7950	5322 130 41982	BC848B only for SECAM L
7952	4822 130 42616	BC818-40 only for SECAM L
7954	4822 130 42616	BC818-40 only for SECAM L
7956	4822 130 42616	BC818-40 only for SECAM L
7960	4822 209 15089	MC13077DW-R2 for SECAM L
7978	5322 130 42718	BFS20 only for SECAM L
7979	5322 130 41982	BC848B only for SECAM L
7999	4822 130 42655	BC808-40 only for SECAM L

Display Control PDCPN4

MISCELLANEOUS

	4822 276 11349	Switch
0109	4822 256 10256	DISPLAY HOLDER
0110	4822 135 00083	DISPLAY BJ-489-GK
1061	4822 242 82114	EFOEC8004/T4
1062	4822 242 81512	32,768 000 MC

CONNECTORS

1510	4822 267 60408	CONN. 19P
1514	4822 267 31663	2 P
1515	4822 267 10476	CONN. 10P
1516	4822 267 51163	10 pin
1519	4822 265 31203	3P
1900	4822 267 31773	HSJ1452-01-110
1901	4822 265 10641	CINCH SOCKET YELLOW
1902	4822 265 10642	CINCH SOCKET WHITE
1903	4822 265 10643	CINCH SOCKET RED

CAPACITORS

2000	4822 124 81045	220	µF	6,3V
2003	4822 122 33177	10	nF	50V
2005	4822 122 33177	10	nF	50V
2006	4822 122 33177	10	nF	50V
2025	4822 124 80229	22	µF	16V
2030	4822 122 33177	10	nF	50V
2035	5322 126 10511	1	nF	50V
2050	4822 122 33177	10	nF	50V
2052	5322 126 10223	4,7	nF	63V
2057	4822 122 33177	10	nF	50V
2060	4822 125 50412	7,5	pF	
2062	5322 122 32448	10	pF	50V
2064	5322 122 32481	15	pF	50V
2070	4822 126 12882	100	nF	50V
2125	4822 122 31435	470	pF	50V
2127	4822 122 31435	470	pF	50V

RESISTORS

3000	4822 116 52175	100	R	0,5W
3001	4822 050 22208	2,2	R	0,6W
3002	4822 116 52175	100	R	0,5W
3005	4822 116 52175	100	R	0,5W
3007	4822 116 52234	100	k	0,5W
3009	4822 051 20473	47	k	0,1W
3020	4822 051 20224	220	k	0,1W
3025	4822 116 52199	68	R	0,5W
3030	4822 051 20104	100	k	0,1W
3032	4822 116 52238	12	k	0,5W
3049	4822 051 20223	22	k	0,1W
3050	4822 051 20104	100	k	0,1W
3053	4822 051 20104	100	k	0,1W
3055	4822 051 20223	22	k	0,1W
3057	4822 117 10833	10	k	0,1W
3071	5322 116 53564	3,3	R	0.5W
3072	4822 116 52283	4,7	k	0,5W
3073	5322 116 53564	3,3	R	0.5W
3074 ⚠	4822 052 10189	18	R	0,33W
3075	4822 116 52188	27	R	0,5W
3080	4822 051 20473	47	k	0,1W
3081	4822 051 20473	47	k	0,1W
3083	4822 051 20473	47	k	0,1W
3084	4822 051 20473	47	k	0,1W
3090	4822 051 20008	0	R	0,1W
3100	4822 116 52219	330	R	0,5W
3102	4822 116 52234	100	k	0,5W
3104	4822 116 52271	33	k	0,5W
3105	4822 116 52219	330	R	0,5W
3120	4822 116 52201	75	R	0,5W
3125	4822 116 52224	470	R	0,5W
3127	4822 116 52224	470	R	0,5W

COILS

5000	4822 158 10604	6,8 MUH

DIODES

6000	4822 130 31983	BAT85
6003	4822 130 31983	BAT85
6025	4822 130 30621	1N4148
6052	4822 130 30621	1N4148
6070	4822 130 61219	BZX79-B10
6094	4822 130 30621	1N4148
6095	4822 130 30621	1N4148
6096	4822 130 30621	1N4148
6097	4822 130 30621	1N4148
6100	4822 130 30621	1N4148
6103	4822 130 30621	1N4148
6120	4822 130 34278	BZX79-B6V8
6123	4822 130 34278	BZX79-B6V8

TRANSISTORS & IC's

7010	5322 130 41983	BC858B
7035	4822 212 30842	TFMS5360
7055	5322 130 41982	BC848B
7060	4822 209 13652	TMP87CH70AF PDPU1
7105	4822 130 40937	BC548B

⚠ ... Safety component, use only this type

Display Control PDCPN3

MISCELLANEOUS

	4822 276 13815	Switch
0100	4822 255 41373	LED HOLDER
0110	4822 135 00083	DISPLAY BJ-489-GK
0130	4822 240 10123	PIEZO BUZZER CB13PA-X5
1060	4822 242 82114	RES EFOEC8004T4 8.00M
1062	4822 242 70938	Crystal 32,768 kHz

CONNECORS

1510	4822 267 60408	Con. HLEM19R-1
1900	4822 267 31773	CON BM PHONE V1P F2.6B
1902	4822 265 10732	Cinch socket 3-fold; shielded
1905	4822 265 10734	S-VHS socket

CAPACITORS

2000	4822 124 11848	220µ
2003	4822 122 33177	10N
2005	4822 122 33177	10N
2006	4822 122 33177	10N
2025	5322 124 41431	22µ
2030	4822 121 51387	10n
2035	5322 122 34123	1n
2050	4822 122 33177	10n
2052	5322 126 10223	4n7
2057	4822 122 33177	10n
2059	4822 122 33177	10n
2060	4822 125 50412	7.5pF-50pF
2062	5322 122 32448	10p
2064	5322 122 32481	15p
2070	4822 126 12882	100n
2100	4822 121 51387	10n
2101	4822 122 33177	10n
2110	4822 122 33342	33n
2125	4822 122 33519	470p
2127	4822 122 33519	470p

RESISTORS

3000	4822 116 52175	100R
3001	4822 050 22208	2R2
3002	4822 116 52175	100R
3005	4822 116 52175	100R
3007	4822 116 52234	100k
3009	4822 051 20473	47k
3020	4822 051 20224	220k
3021	4822 051 20122	1k2
3022	4822 116 52207	1k2
3025	4822 116 52199	68R
3030	4822 116 52234	100k
3032	4822 116 52238	12k
3049	4822 051 20223	22k
3050	4822 051 20104	100k
3053	4822 051 20104	100k
3055	4822 051 20223	22k
3057	4822 117 10833	10k
3064	4822 116 52243	1k5
3072	4822 050 24702	4k7
3073	4822 050 25608	5R6
3074 ⚠	4822 052 10189	18R
3075	4822 050 23308	3R3
3085	4822 116 52256	2k2
3086	4822 116 83872	220R
3087	4822 116 52256	2k2
3088	4822 116 52219	330R
3095	4822 116 52256	2k2
3096	4822 116 83872	220R
3097	4822 116 83872	220R
3100	4822 116 52219	330R
3102	4822 116 52234	100k
3104	4822 116 52271	33k
3105	4822 116 52219	330R
3110	4822 051 20759	75R
3113	4822 116 52234	100k
3117	4822 051 20759	75R
3120	4822 051 20759	75R
3125	4822 116 52224	470R
3127	4822 116 52224	470R
4000	4822 051 10008	JMP 1206
4001	4822 051 10008	JMP 1206
4002	4822 051 10008	JMP 1206
4003	4822 051 10008	JMP 1206
4004	4822 051 10008	JMP 1206
4005	4822 051 10008	JMP 1206
4006	4822 051 10008	JMP 1206
4007	4822 051 10008	JMP 1206
4008	4822 051 10008	JMP 1206
4009	4822 051 10008	JMP 1206

COILS

5000	4822 158 10604	FIXD IND LAL04 6U8 PM10

DIODES

6000	4822 130 31983	DIO SIG BAT85 (UAW)
6003	4822 130 31983	DIO SIG BAT85 (UAW)
6021	4822 130 10685	DI LED LTL4231N-001
6022	4822 130 10686	DI LED LTL4221N-001
6025	5322 130 31928	DIO SIG SM BAS16 (ELCO)
6050	4822 130 83152	OPTO-PHE MULTI LED LU5351
6052	5322 130 31928	DIO SIG SM BAS16 (ELCO)
6070	4822 130 61219	DIO REG BZX79-C10 (UAW)
6095	4822 130 30621	DIO SIG 1N4148 (UAW)
6096	4822 130 30621	DIO SIG 1N4148 (UAW)
6097	4822 130 30621	DIO SIG 1N4148 (UAW)
6100	4822 130 30621	DIO SIG 1N4148 (UAW)
6103	4822 130 30621	DIO SIG 1N4148 (UAW)
6110	4822 130 34278	DIO REG BZX79-C6V8 (UAW)
6113	4822 130 34278	DIO REG BZX79-C6V8 (UAW)
6115	4822 130 34278	DIO REG BZX79-C6V8 (UAW)
6117	4822 130 34278	DIO REG BZX79-C6V8 (UAW)
6120	4822 130 34278	DIO REG BZX79-C6V8 (UAW)
6123	4822 130 34278	DIO REG BZX79-C6V8 (UAW)
6196	4822 130 10687	DI LED LTL 45 AGE GREEN
6197	4822 130 10687	DI LED LTL 45 AGE GREEN

TRANSISTORS & IC's

7010	5322 130 41983	TRA SIG SM BC858B (UAW)
7035	4822 212 30842	OPTO-PHS TFMS5360
7055	5322 130 41982	TRA SIG SM BC848B
7060	4822 209 13652	IC-DIG TMP87CH70AF
7085	4822 130 40937	TRA SIG BC548B
7087	4822 130 44197	TRA SIG BC558B
7095	5322 130 41982	TRA SIG SM BC848B (UAW)
7105	4822 130 40937	TRA SIG BC548B (UAW)

⚠ ... Safety component, use only this type

Display Control PDCPN2

MISCELLANEOUS

	4822 276 13815	SWITCH
0010	4822 413 51512	JOG SHUTTLE EVQ WMA
0109	4822 256 92072	Display holder
0110	4822 135 00083	DISPLAY BJ-489-GK
1060	4822 242 82114	EFOEC8004T4 8.00M
1062	4822 242 70938	Crystal 32,768 kHz

CONNECTORS

1510	4822 267 10457	CON HLEM19S-1 FRA
1516	4822 267 31512	2 pin
1517	4822 267 40696	3 pin
1900	4822 267 31773	EDIT PLUG
1902	4822 265 10733	3-FOLD CINCH SOCKET

CAPACITORS

2000	4822 124 11848	220µ
2003	4822 122 33177	10n
2005	4822 122 33177	10n
2006	4822 122 33177	10n
2025	5322 124 41431	22µ
2030	4822 122 33177	10n
2035	5322 122 34123	1n
2050	4822 122 33177	10n
2052	5322 126 10223	4n7
2057	4822 122 33177	10n
2060	4822 125 50412	7.5pF-50pF
2062	5322 122 32448	10p
2064	5322 122 32481	15p
2070	4822 126 12882	100n
2077	5322 122 32654	22n
2078	5322 122 32654	22n
2101	4822 122 33177	10n
2125	5322 122 34099	470p
2127	5322 122 34099	470p

RESISTORS

3000	4822 051 20101	100R
3001	4822 050 22208	2R2
3002	4822 051 20101	100R
3005	4822 051 20101	100R
3007	4822 051 20104	100k
3009	4822 051 20473	47k
3020	4822 051 20224	220R
3025	4822 116 52199	68R
3030	4822 116 52234	100k
3032	4822 116 52238	12k
3049	4822 051 20223	22k
3050	4822 051 20104	100k
3053	4822 051 20104	100k
3055	4822 051 20223	22k
3057	4822 117 10833	10k
3062	4822 116 52283	4k7
3063	4822 051 10181	180R
3065	4822 116 52283	4k7
3066	4822 051 10181	180R
3072	4822 050 24702	4k7
3073	4822 050 25608	5R6
3074	4822 052 10189 ⚠	18R
3075	4822 050 23308	3R3
3076	4822 051 10102	1k
3077	4822 051 20224	220k
3078	4822 051 20224	220k
3079	4822 051 10102	1k
3080	4822 116 52284	47k
3081	4822 116 52284	47k
3083	4822 116 52284	47k
3084	4822 116 52284	47k
3095	4822 116 52283	4k7
3096	4822 116 83868	150R
3097	4822 116 52175	100R
3100	4822 051 20101	100R
3101	4822 117 10353	150R
3120	4822 051 20759	75R
3125	4822 051 20471	470R
3127	4822 051 20471	470R
4000	4822 051 10008	JMP 1206
4001	4822 051 10008	JMP 1206
4002	4822 051 10008	JMP 1206
4003	4822 051 10008	JMP 1206
4004	4822 051 10008	JMP 1206
4005	4822 051 10008	JMP 1206
4006	4822 051 10008	JMP 1206
4007	4822 051 10008	JMP 1206
4008	4822 051 10008	JMP 1206
4009	4822 051 10008	JMP 1206
4010	4822 051 10008	JMP 1206
4011	4822 051 10008	JMP 1206
4012	4822 051 10008	JMP 1206
4013	4822 051 10008	JMP 1206
4014	4822 051 10008	JMP 1206
4015	4822 051 10008	JMP 1206
4016	4822 051 10008	JMP 1206
4017	4822 051 10008	JMP 1206
4018	4822 051 10008	JMP 1206
4019	4822 051 10008	JMP 1206
4020	4822 051 10008	JMP 1206

COILS

5000	4822 158 10604	FIXED IND LAL04 6U8 PM10

DIODES

6000	4822 130 31983	DIO SIG BAT85 (UAW)
6003	4822 130 31983	DIO SIG BAT85 (UAW)
6025	4822 130 30621	DIO SIG 1N4148 (UAW)
6052	5322 130 31928	DIO SIG SM BAS16 (ELCO)
6070	4822 130 61219	DIO REG BZX79-C10 (UAW)
6095	4822 130 30621	DIO SIG 1N4148 (UAW)
6096	4822 130 30621	DIO SIG 1N4148 (UAW)
6097	4822 130 30621	DIO SIG 1N4148 (UAW)
6120	5322 130 80406	DIO REG BZX84C6V8
6123	5322 130 80406	DIO REG BZX84C6V8

TRANSISTORS & IC's

7010	5322 130 41983	TRA SIG SM BC858B (UAW)
7035	4822 212 30842	OPTO-PHS TFMS5360
7055	5322 130 41982	TRA SIG SM BC848B (UAW)
7060	4822 209 13652	IC-DIG TMP87CH70AF
7062	5322 130 41983	TRA SIG SM BC858B (UAW)
7065	5322 130 41983	TRA SIG SM BC858B (UAW)
7095	4822 130 40937	TRA SIG BC548B (UAW)

⚠ ... Safety component, use only this type

Display Control PDCPN1

MISCELLANEOUS

	4822 276 11349	Switch
0007	4822 466 11162	CENTRE PLATE EDIT
0008	4822 466 11163	CENTER PLATE V/A
0109	4822 256 10256	DISPLAY HOLDER
0110	4822 135 00083	Display BJ-489-GK
0130	4822 240 10123	Loudspeaker
1060	5322 242 73697	EFOEC8004A4
1062	4822 242 81512	32,768 000 MC

CONNECTORS

1510	4822 267 60408	CONN. 19P
1511	4822 265 41393	7P
1512	4822 265 30987	BMT 7SR>CBL0,3-1,25
1514	4822 265 41393	7P
1515	4822 267 10468	CONN. 20P
1516	4822 267 10468	CONN. 20P
1518	4822 265 41393	7P
1519	4822 267 10459	CONN.3P
1520	4822 267 10459	CONN.3P
1900	4822 267 31773	HSJ1452-01-110
1901	4822 267 31775	JPJ2022-01-840 YELLO
1902	4822 267 31929	1 P. FEM (WH)
1903	4822 267 31924	1 P. FEM (RD)
1905	4822 267 31765	Connector

CAPACITORS

2000	4822 124 81045	220	µF	6,3V
2003	4822 122 33177	10	nF	50V
2005	4822 122 33177	10	nF	50V
2006	4822 122 33177	10	nF	50V
2025	4822 124 80229	22	µF	16V
2030	4822 122 33177	10	nF	50V
2035	5322 126 10511	1	nF	50V
2040	4822 122 33177	10	nF	50V
2042	4822 122 33177	10	nF	50V
2044	4822 122 33177	10	nF	50V
2050	4822 122 33177	10	nF	50V
2052	5322 126 10223	4,7	nF	63V
2057	4822 122 33177	10	nF	50V
2060	4822 125 50412	7,5	pF	
2062	5322 122 32448	10	pF	50V
2064	5322 122 32481	15	pF	50V
2070	4822 126 12882	100	nF	50V
2077	5322 122 32654	22	nF	63V
2078	5322 122 32654	22	nF	63V
2080	5322 126 10223	4,7	nF	63V
2105	4822 122 33342	33	nF	63V
2120	5322 122 32268	470	pF	50V
2124	5322 122 32268	470	pF	50V

RESISTORS

3000	4822 051 20101	100	R	0,1W
3001	4822 050 22208	2,2	R	0,6W
3002	4822 051 20101	100	R	0,1W
3005	4822 051 20101	100	R	0,1W
3007	4822 051 20104	100	k	0,1W
3009	4822 051 20473	47	k	0,1W
3020	4822 051 20224	220	k	0,1W
3025	4822 051 20689	68	R	0,1W
3030	4822 051 20104	100	k	0,1W
3032	4822 117 11383	12	k	0,1W
3049	4822 051 20223	22	k	0,1W
3050	4822 051 20104	100	k	0,1W
3053	4822 051 20104	100	k	0,1W
3055	4822 051 20223	22	k	0,1W
3057	4822 117 10833	10	k	0,1W
3064	4822 117 11139	1,5	k	0,1W
3066	4822 051 20223	22	k	0,1W
3071	5322 116 53564	3,3	R	0.5W
3072	4822 116 52283	4,7	k	0,5W
3073	5322 116 53564	3,3	R	0.5W
3074 ⚠	4822 052 10189	18	R	0,33W
3075	5322 116 53564	3,3	R	0.5W
3076	4822 051 10102	1	k	0,25W
3077	4822 051 20224	220	k	0,1W
3078	4822 051 20224	220	k	0,1W
3079	4822 051 10102	1	k	0,25W
3080	4822 051 20473	47	k	0,1W
3081	4822 051 20473	47	k	0,1W
3083	4822 051 20473	47	k	0,1W
3084	4822 051 20473	47	k	0,1W
3101	4822 051 20104	100	k	0,1W
3102	4822 117 10353	150	R	0,1W
3103	4822 051 20101	100	R	0,1W
3105	4822 051 20759	75	R	0,1W
3110	4822 051 20759	75	R	0,1W
3115	4822 051 20759	75	R	0,1W
3120	4822 051 20471	470	R	0,1W
3124	4822 051 20471	470	R	0,1W

COILS

5000	4822 158 10604	6,8 MUH

DIODES

6000	4822 130 31983	BAT85
6003	4822 130 31983	BAT85
6025	4822 130 30621	1N4148
6052	4822 130 30621	1N4148
6070	4822 130 61219	BZX79-B10
6092	4822 130 30621	1N4148
6093	4822 130 30621	1N4148
6094	4822 130 30621	1N4148
6095	4822 130 30621	1N4148
6096	4822 130 30621	1N4148
6097	4822 130 30621	1N4148
6103	4822 130 34278	BZX79-B6V8
6105	4822 130 34278	BZX79-B6V8
6108	4822 130 34278	BZX79-B6V8
6110	4822 130 34278	BZX79-B6V8
6115	4822 130 34278	BZX79-B6V8
6117	4822 130 34278	BZX79-B6V8

TRANSISTORS & IC's

7010	5322 130 41983	BC858B
7035	4822 212 30842	TFMS5360
7055	5322 130 41982	BC848B
7060	4822 209 13652	TMP87CH70AF PDU1

SOCKETS

8520	4822 267 31766	Synchro Edit Socket

⚠ ... Safety component, use only this type

Control Unit PCUPN1

MISCELLANEOUS

0010	4822 276 13618	Rotary switch EVQMB001
	4822 276 13765	Switch

CONNECTORS

1512	4822 265 30987	BMT 7SR>CBL0,3-1,25
1515	4822 267 10468	CONN. 20P
1516	4822 267 10468	CONN. 20P
1532	4822 264 40256	3 pin
1533	4822 267 10471	CONN. 2P
1534	4822 267 10471	CONN. 2P
1535	4822 267 10472	CONN. 8P
1907	4822 267 10473	CONN. 1P
1909	4822 267 10474	CONN. 1P

CAPACITORS

2005	4822 122 33177	10	nF	50V
2020	4822 122 33177	10	nF	50V
2021	4822 122 33177	10	nF	50V
2025	5322 126 10511	1	nF	50V
2027	4822 124 11763	1	µF	16V
2029	4822 124 11764	22	µF	16V
2030	4822 124 11765	2,2	µF	50V
2033	5322 122 32531	100	pF	50V
2035	4822 124 11766	47	µF	16V
2042	4822 126 13176	100	nF	25V
2045	4822 126 13176	100	nF	25V
2047	5322 122 32658	22	pF	50V
2050	4822 122 33177	10	nF	50V
2060	4822 122 33342	33	nF	63V
2090	4822 124 42433	330	µF	6,3V

RESISTORS

3000	4822 116 52283	4,7	k	0,5W
3002	4822 116 83872	220	R	0,5W
3005	4822 116 52283	4,7	k	0,5W
3007	4822 116 52219	330	R	0,5W
3010	4822 101 11463	5, L	k	
3012	4822 101 11463	5, L	k	
3015	4822 101 11463	5, L	k	
3020	4822 116 52283	4,7	k	0,5W
3022	4822 116 52283	4,7	k	0,5W
3025	4822 051 20223	22	k	0,1W
3027	4822 051 20101	100	R	0,1W
3029	4822 051 20221	220	R	0,1W
3033	4822 051 20223	22	k	0,1W
3035	4822 051 20223	22	k	0,1W
3037	4822 051 20393	39	k	0,1W
3039	4822 051 20393	39	k	0,1W
3040	4822 101 11464	5, L	k	
3042	4822 117 11383	12	k	0,1W
3045	4822 051 20333	33	k	0,1W
3047	4822 051 20101	100	R	0,1W
3049	4822 051 20224	220	k	0,1W
3060	4822 051 20472	4,7	k	0,1W
3065	4822 116 52228	680	R	0,5W
3070	4822 116 52283	4,7	k	0,5W
3071	4822 117 11383	12	k	0,1W
3072	4822 051 20122	1,2	k	0,1W
3073	4822 051 20181	180	R	0,1W
3074	4822 116 52207	1,2	k	0,5W
3075	4822 116 52283	4,7	k	0,5W
3076	4822 116 52213	180	R	0,5W
3080	4822 116 52283	4,7	k	0,5W
3081	4822 116 52213	180	R	0,5W
3085	4822 116 52283	4,7	k	0,5W
3086	4822 051 20181	180	R	0,1W
3087	4822 116 52283	4,7	k	0,5W
3088	4822 117 11383	12	k	0,1W
3089	4822 051 20331	330	R	0,1W
3090	4822 117 11502	13	k	0.1W
3091	4822 117 11379	9,1	k	
3092	4822 116 52291	56	k	0,5W
3093	4822 116 52257	22	k	0,5W
3094	4822 116 52291	56	k	0,5W
3095	4822 116 52257	22	k	0,5W
3096	4822 116 52291	56	k	0,5W
3097	4822 116 52257	22	k	0,5W
3098	4822 116 52207	1,2	k	0,5W
3102	4822 051 10008	0	R	0,25W
3103	4822 051 20181	180	R	0,1W
3106	4822 051 20181	180	R	0,1W
3109	4822 051 20181	180	R	0,1W

DIODES

6000	4822 130 83915	TLMV3100
6065	4822 130 10426	TLHG4401
6072	4822 130 10426	TLHG4401
6073	4822 130 10427	TLMG3101
6074	4822 130 10426	TLHG4401
6080	5322 130 83805	TLSG126
6086	4822 130 10427	TLMG3101
6089	4822 130 10428	TLMH1301

TRANSISTORS & IC's

7000	5322 130 41982	BC848B
7005	5322 130 41983	BC858B
7030	4822 209 30419	BA4560F-E1
7050	4822 212 30842	TFMS5360
7060	5322 130 41982	BC848B
7070	5322 130 41983	BC858B
7075	5322 130 41983	BC858B
7080	5322 130 41983	BC858B
7085	5322 130 41982	BC848B
7087	5322 130 41983	BC858B
7090	5322 130 41982	BC848B
7095	5322 130 41982	BC848B

Complete PCBs

1025	4822 214 11679	Teletext PCB PVT1
1025	4822 214 11557	Teletext PCB PVT2
1025	4822 214 11546	Teletext PCB PVT6
20/2	4822 214 11606	Control Unit PKP31

Cables

9501	4822 320 11498	FFC ASSY 6 POL.	
9503	4822 320 11483	FLAT FLEX CABLE SCR 7pol	
9508	4822 320 11484	FLAT FLEX CABLE 3pol	
9510	4822 320 11499	FLAT FLEX CABLE 19pol	
9516	4822 320 11501	FLAT FLEX CABLE 10pol	
9526	4822 320 11485	FLAT FLEX CABLE 18pol	
	4822 321 10249	Mains cord	not for UK
	4822 321 10886	Mains cord (+fuse)	for UK
	4822 320 50377	Antenna cable	
	4822 321 62402	S-VHS cable	
	4822 321 63006	Scart cable (Easy Link)	

Sockets

9538	4822 265 10637	RS 232 SOCKET ASSY

Extension Adapter

4822 310 10748	Extension Adapter S-VHS